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SELF-CONCEPT DISCREPANCY, ATTRIBUTIONAL STYLE AND STUDENTS' COPING WITH FAILURE

by
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Abstract

SELF-CONCEPT DISCREPANCY, ATTRIBUTIONAL STYLE AND STUDENTS' COPING WITH FAILURE

POON Wing-tong

Despite the interest of many researchers in attributional style, self-concept discrepancy and coping behaviour, the three have not been studied together. Attributional style and self-concept discrepancy were mainly used to explore the undesirable coping outcome of depression and coping behaviour were mainly related to situation-specific factors.

The present study aimed to bridge this gap by exploring how attributional style and self-concept discrepancy might affect students' coping behaviour. The coping styles, cognitive styles and self-concepts of students are still in the formation stage. If more is known about their coping behaviour, they can be guided to adjust better.

A sample of 483 Hong Kong Chinese students in the 10th grade were studied. Each of them completed a battery of tests including the Ways of Coping (WOC), the Attributional Style Questionnaire (ASQ), and an abridged version of the Self Description Questionnaire III (SDQIII). The WOC was used to assess the style of coping, the ASQ was used to measure the depressive attributional style, and the SDQIII was used to find out the self-concept discrepancy.

A canonical correlation analysis with varimax rotation was performed between four coping styles as criteria and a set of predictor variables including background, depressive attributional style and self-concept discrepancy. Three significant canonical Variate-Pairs were identified at $p<.05$. The total criterion redundancy for the three

canonical variates showed that the predictors could predict nearly one-fifth of the variance of the criteria.

The first canonical variates showed that students with small self-concept discrepancy and low depressive attributional style tended to use planful problem-solving and positive reappraisal to cope with failure. The second canonical variates showed that girls, and students with small Verbal and Same Sex Peers self-concept discrepancies tended to seek more social support. The last canonical variates showed that students without religious belief, as well as students with great Same Sex Peers and Parent Relations self-concept discrepancies tended to choose escape when they faced failure.

A separate canonical analysis with two self-concept discrepancy factors as predictors also showed that students with small self-concept discrepancy and less depressive attributional style tended to use planful problem-solving and positive reappraisal. As these two strategies were found to be related to satisfactory coping outcomes, teachers and parents are warned not to impose overly demanding ideals on students because it may create undesirable self-concept discrepancy. Training the students to evaluate properly the opinions and ideas from their peers is also important for it can prevent students' self-concept from being affected by some of the immature attitudes from their peers.

Teachers, who use persuasion in class most of their time, are in an advantageous position to induce attributional change in the students. When teachers are explaining things to students, they can also influence the way students explain things. Therefore, teachers should have a better understanding and awareness of the attribution process so as to help students develop an attributional style that enable them to cope better.

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Introduction

Background of the study

Human world is a world of imperfection, life is full of disappointment and dissatisfaction. No matter how successful a person is, failure is still inevitable. It is the reactions to failure rather than the encounter of failure that distinguish successful people from unsuccessful ones (e.g., Weisz, 1981b). Imperfection in life justifies the efforts to strive for perfection. Whenever there is imperfection, there is room for improvement. Failures can be regarded as functional because they create necessary motivation. However, for some people, failures only bring about defeat and hopelessness. After failing an examination, some students are determined to try harder, while some just give in. What makes this difference? Why can't everyone be motivated after failure? The primary purpose of this study was to explore why students have different coping behavior after failures.

High school students are in the stage characterized by storm and stress (Hall, 1904; Hurlock, 1973) and identity crisis (Erikson, 1968). During this period, they are expected to learn and equip themselves for future adult life. In their transition from a dependent adolescent role to an independent adult role, they are prone to experience all sorts of stress resulted from their role strains. Moreover, they have to meet the conflicting demands from school, parents, and peers. They have to compete with brothers, sisters, fellow students, and playmates. Life to

them is extremely stressful and demanding; therefore, even the brightest students will encounter some sorts of stressful or failing experience. Coping with stress has become an integral part of their lives since early childhood. It was reported that even children at the age of six were "sufficiently aware of stress and coping in their own lives" (Band & Weisz, 1988, p. 25). Thus, if the factors affecting students' coping behavior are known, teachers and educators will be in a better position to help students and to equip them with appropriate coping strategies.

In the past, various factors have been suggested to explain why people have different coping behaviors (e.g., Billings & Moos, 1981; Brown, 1976; Coyne, Aldwin & Lazarus, 1981; Fleishman, 1984; Folkman & Lazarus, 1980; George, 1980; Janis, 1958; Pearlin & Schooler, 1978), but the present study did not intend to add any new factor to this endless list or to replicate any previous study. Instead, the main purpose of the present study was to explore the effect of two often overlooked factors on students' coping behavior: attributional style and self-concept discrepancy. While Pearlin and Schooler (1978) classified these two factors as psychological resources, Menaghan (1983) would call them coping resources. No matter how the two factors are coined, they represent the personality characteristics that are advantageous in coping with various stressful situations.

When a man wins a large sum of money in gambling and explains his success with some transient luck factors, then he will not expect his success in gambling to recur and he may not gamble again. Therefore, it is reasonable to suggest that people's reaction to an event is influenced by the expectation of the persistence and recurrence of that event, and the expectation is in turn determined by the explanation of that event. This process is called the

attribution process, the explanation of the occurrence of an event is termed the "causal attribution".

Weiner (1979) used the concept "causal dimension" to represent the underlying constructs that reflect the psychologically meaningful properties or characteristics of causal attributions. With these underlying constructs to summarize the various attributions made by people, it is possible to expect people to have a tendency to make causal attributions consistently along certain causal dimension(s) across different situations. For example, a student may attribute the failure on an examination to the lack of ability, and attribute the failure of a job application to the lack of effort. Although the causal attributions for the two different situations are not the same, they can be represented by internal attribution. This tendency to make causal attributions along certain causal dimension(s) can be termed as "attributional style".

Past studies have given ample support to the notion that attribution style is significant in the coping process. However, the emphasis was mainly on the unsatisfactory coping outcome of depression (e.g., Arkin, Appelman, & Burger, 1980; Klein, Fencil-Morse, & Seligman, 1976; Kuiper, 1978; Major, Mueller, & Hildebrandt, 1985; Peterson & Seligman, 1984; Raps, Peterson, Reinhard, Abramson, & Seligman, 1982; Rizley, 1978; Seligman, Abramson, Semmel, & von Baeyer, 1979; Sweeney, Anderson & Bailey, 1986). Few studies have explored the effect of attributional style on people's actual coping behavior; so the present study focused on this underexplored area.

Besides attributional style, past studies also showed the relationships between coping behavior and some self-related constructs such as self-efficacy (Bandura, 1977, 1982), self-evaluation (Butler & Meichenbaum, 1981; Heppner & Petersen, 1982), and self-esteem (Brewin & Harris, 1978).

However, the present study employed another self-related construct. This construct, emerges when an aspect of one's self-concept is evaluated or compared with another aspect of the self-concept, is called self-concept discrepancy. Self-concept discrepancy was used in the present study because it embraces different aspects of self-concept such as the real and ideal selves and because it comprises the essence of self-evaluation and self-esteem. Self-evaluation can be regarded as the discrepancy between one's real self and some internal or external standards and self-esteem is often treated as the discrepancy between one's real self and one's ideal self. Furthermore, great self-concept discrepancy has long been used as an indicator of low self-esteem (e.g., Gough, Fioravanti, & Lazzari, 1983; Gough, Lazzari, & Fioravanti, 1987; Lawrence, 1981; Winkler & Myers, 1963).

Although self-concept discrepancy encompasses a broader domain of self-concept, researches of its effect on coping behavior is still inadequate. Therefore, it was used in this study to explore students' coping behavior.

Focus of the study

Both attributional style and self-concept discrepancy may influence coping behavior, but it is still necessary to ask what the influence is and how they actually influence coping behavior. Do attributional style and self-concept discrepancy affect coping behavior independently through different mechanisms or do they act on coping behavior jointly? In other words, what is the relationship between attributional style and self-concept discrepancy in their influence on coping behavior?

In sum, the focus of the present study was to explore the relationship among students' attributional style, self-

concept discrepancy, and coping behavior; and to explore the unique and confounded influences of attributional style and self-concept discrepancy on students' coping behavior.

Importance of the Study

The present study is significant for its emphasis on an often overlooked intermediate process between stress and depression because studies of reactions to stressful life-events usually emphasize the resultant outcome of depression and give the impression that depressed people are depressed because they do not know how to cope with the stress and fail to take any actions to cope with it. However, this study employed a different point of view. The focus of this study was on coping behavior rather than the resultant outcome of depression. It was suggested that both depressed and nondepressed people have actually done something in response to the stress. Depressed people or unsuccessful copers are not regarded as passive. They are not just sitting there and doing nothing, they have already coped with the stress.

The present study is also significant for its bridging together of coping behavior with attributional style and self-concept discrepancy. Some previous findings of coping behavior did imply the significant roles played by attributional style and self-concept discrepancy in the stress process, but current studies of attributional style and self-concept discrepancy mainly concern the unsatisfactory coping outcomes of depression, and determinants of coping behavior found are mostly situation-specific. It is hoped that by bridging this gap, this study can shed light on a field which is underexplored.

Finally, the present study is also significant for its bearing on students' guidance and counselling work. If the

relationship by which attributional style and self-concept discrepancy affect coping behavior is known, then it is possible for behavior intervention. A better understanding about this process of students' coping behavior as affected by attributional style and self-concept discrepancy may help teachers, counsellors, and educators to plan and implement their works. Consequently, students will be better guided and understood when they are passing through this stage of rapid change and pressing demands.

Review of related literature

Coping

Stress in life is inevitable, but different conceptions about the etiology of stress will lead to different responses to stress. However, even there is a more precise idea about how stress arises, the effectiveness of a coping strategy is still uncertain because a strategy effective for some people may be ineffective for others. Therefore, it is necessary to have some coherent constructs to summarize various coping strategies before the antecedents and consequences of coping response can be evaluated. A taxonomy of coping behavior not only makes the evaluation of coping behavior possible but also suggests that people may develop different styles of coping representing different habitual tendencies to cope with stress.

Stress etiology. Investigations of coping behavior have an implicit objective to identify effective strategies to prevent or buffer the harmful effect caused by stress. However, the search will be just a vain attempt if the etiology of stress is not known. Stress can be regarded as an unpleasant stimulus encountered by people; so it is sometimes called "stressor". Whether the stressors considered are traumatic events or just ordinary, normative changes in one's life, the emphasis is on the identification of stressful life-events and the determination of how and why these stressors affect people. The Social Readjustment Rating Scale designed by Homles and Rahe (1967) is a typical scale that employs this view of

stress. In their scale, they list 43 life-events that may be stressful to people and suggest different weights for each event. The weights represent the strength of stress ranging from the maximum of 100 life-change units for the death of a spouse to the minimum of 11 for minor violation of the law.

The life-event view of stress is straightforward, but it is inadequate to reflect the reality. People do not always get disturbed for they have stress-resistant resources to reduce or to buffer the effects of stressors (Thoits, 1983). Therefore, instead of treating stress as stressor, some treat stress as the psychological and physiological response to stressor. This idea of stress mainly bases on the homeostasis model (Selye, 1956) which places great emphasis on external changes that disturb or threaten to disturb people's internal ongoing state. With this emphasis, stress is understood as people's nonspecific response to any demand placed on them. People need a state of social and psychological equilibrium, when their existing patterns of thought and behavior are disturbed by some stressful life-events, they will employ coping strategies to reestablish the previous homeostasis.

Nevertheless, some investigators (e.g., Cox, 1978; Lazarus, 1981; Stagner, 1981), objected both the life-event and homeostasis views of stress. They argued that mere change of the external environment is neither necessary nor sufficient to explain the origin of stress and responses to stress cannot be nonspecific. That is, change per se may not be stressful for people and stress per se may not trigger response from people. According to their view, stress is actually formed when there is mismatch between the person and the environment or when there is discrepancy between external demand and internal resources to meet the demand. This mismatch between the person and the environment can be an objective mismatch, but what

influence people most is the perceived mismatch. That is, even if a person really lacks the needed resources to meet external demand, it will not be a stress so long as he or she does not perceive or endorse this mismatch. Therefore, stressful events are stressful when they are perceived as such rather than because of the intrinsic nature of the events. Lazarus and his colleagues (e.g., Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986) called this subjective perception of stress "cognitive appraisal"; and they defined it as the "process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what ways" (p. 992).

Pearlin (1983) was also dissatisfied with the life-event and homeostasis views of stress, but he proposed another possible source of personal stress through a sociological perspective. He suggested role strains as one of the significant sources of stress and argued that stress caused by role strains was more structured through time and he also identified six role strains situations that are conducive to personal stress. In reality, people have multiple roles. For example, a boy is a student to his teacher; and at the same time he is also a son to his parents, a brother to his siblings, and a "hero" to his girl friend. Therefore, there may be unwanted role imposed by other people, role task unable to meet, and conflicting demands from different roles. The unsatisfied role tasks, unwanted roles and role conflicts constitute the first three situations conducive to stress. Furthermore, no role can be performed satisfactorily by a single individual, every role is webbed into a multitude of social network; conflicts between people sharing the same role set are another source of stress. Finally, even in the most stagnant society, roles are subject to frequent change and modification, and during one's passage from cradle to grave, he or she is always taking up new roles and

abandoning obsolete ones. The gains and losses as well as the restructuring of roles constitute the last two sources of personal stress.

Contrary to the life-event perspective that puts emphasis on environment and the homeostasis perspective that puts emphasis on individual response, the perceived mismatch and role strains perspectives take into consideration both factors because stress is resulted from the interaction of individual and environment. Most psychological explorations of stress utilize the conception of perceived mismatch whereas sociological investigations like to employ the role strains paradigm. As Pearlin (1983) confessed "there is no one source of stress more important than all others" (p. 30), a single theory to synthesize various propositions about stress etiology is neither desirable nor necessary, but it is important for the researchers to bear in mind the kind of stress they are addressing. Otherwise, they will be lost in the maze of finding solutions for an unknown problem.

Stress response. Although different people have different perspectives of stress etiology, they should have one thing in common: it is the ubiquitousness of stress. Selye and Cheery (1978) commented that "our aim shouldn't be to completely avoid stress, which at any rate would be impossible, but to learn how to recognize our typical response to stress and then try to moderate our lives in accordance with it" (p. 60). According to Selye's (1956) three stress response stages, Weinman (1981) summarized that people facing stress are first in an initial alarm and shock state with mainly physiological and emotional reactions; they will then activate coping strategies to deal with the stress; if coping is successful then the alarm and shock will subside, otherwise the stress will continue to affect behavior and depression or withdrawal may occur. The response to stress is very important

because the consequences of failing to cope with the stress can be serious. It can cause functional and structural damage to people such as physical illness (e.g., Cobb & Rose, 1973) and the depressive feeling of hopelessness and helplessness (e.g., Brewin, 1985). Weinman (1981) even argued that it could lead to suicidal thoughts and actions in the extreme.

Weisz (1981b) reported that retarded and nonretarded children with similar mental ability were different in their performance mainly because of their different responses to failure feedback. The behavioral deficits of the retarded children were not resulted directly from their deficient abilities (as they had similar mental age with the nonretarded), but from their different responses to failure. Thus, the difference in coping ability and stress response explain why people are different in their life outcomes.

With an involuntary job disruptions as an example of stressful life-event, Pearlin, Menaghan, Lieberman, and Mullan (1981) demonstrated the importance of stress response in buffering the outcome of stress. They discovered that stressful life-events did not directly lead to depression but create some depression antecedents such as the loss of self-esteem and the loss of a sense of mastery which in turn caused depression. Depression was also found to be indirectly affected by coping behavior because coping behavior could have some buffering effects on the depression antecedents. Their model of the stress process can be represented in Figure 1.

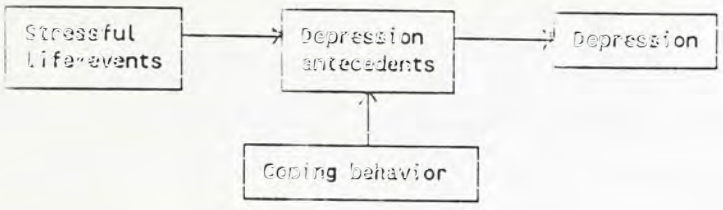


Figure 1. The stress process (Pearlin et al., 1981)

Depression seems to be the final or long term result of stressful life-events if they are not properly coped with. However, before the emergence of depression, when people are facing stressful life-events, whether they will be depressed or not, they must do something to cope with it. Therefore, coping is the major factor mediating the relationship between stressful life-events and the resultant outcomes such as depression, psychological symptoms, and somatic illnesses. In the present study, stress response is conceptualized as coping behavior.

Coping taxonomy. As stress is inevitable and coping is so important, the immediate task seems to find out what coping strategies are used by people and which strategies are effective. However, in principle, different people in different situations can use different coping strategies. These strategies may be effective for some and ineffective for others, and strategies effective in one situation may not be so in another. Thus, a taxonomy for coping behavior is needed for a more coherent understanding of the behavior. Without any underlying constructs to summarize the divergent coping efforts employed by people, any discovery of specific coping strategy will just be a meaningless addition to the endless list of coping strategies.

Different researchers have different taxonomies for coping behavior, some of them used a three-dimension classification for coping. For example, Pearlin and Schooler (1978) as well as Colletta and Gregg (1981) have similar categories to distinguish three types of coping behavior. The first type is direct action aiming at changing the stressful situation; the second one is interpretive appraisal aiming at altering the meaning of the stress; and the last one is emotion management aiming at controlling the distressful feelings caused by the stress. Billings and Moos (1981) gave the name "active-behavioral" for direct action and "active-cognitive" for interpretive appraisal. Their last category is "avoidance", which can be treated as a subcategory of emotion management.

Another group of researchers used a simpler two-dimension typology. Folkman and Lazarus (1980) proposed two basic types of coping behavior: Problem-focused coping is behavior that alter the stress, and emotion-focused coping is behavior that alleviate the negative emotion caused by the stress. Weisz, Rothbaum, and Blackburn (1984) suggested two basic types of control behavior which can also be regarded as a coping taxonomy. According to them, primary control is behavior aiming at influencing objective conditions or events, and secondary control is behavior aiming at maximizing one's goodness of fit with conditions as they are. Based on their emphasis on people's general orientation to stress, Roth and Cohen (1986) suggested "approach" and "avoidance" as the two basic modes of coping with stress.

Although different people suggested different categories for coping behavior, there are actually some significant overlapping across different systems of classification. For example, most systems have included

the category of coping behavior directed to change the stressful situation. Nevertheless, even if there is some divergence in classification, the success in attaining some typologies presumes the existence of a coping style. In Fleishman's words (1984), "classifying different types of coping raises the possibility that people will develop preferences and fixate on a particular type of coping, which they will use to deal with a variety of problems" (p. 240).

Coping style. In their study, Folkman and her colleagues (1986) pointed out the dilemma of using an intraindividual approach or an interindividual approach to investigate coping behavior. In other words, it is difficult to choose between making comparison across different situations for the same individual and making comparison across different individuals. They decided on the former, so they treated neither cognitive appraisal nor coping as a consistent style that characterized an individual.

They chose the situation-specific approach, but they did not deny the possibility of a dispositional approach. In fact, they (Folkman & Lazarus, 1980) did talk of the consistency of coping patterns in an early study and pointed out there were gender differences in problem-focused coping. They defined coping pattern as "the combined proportion of problem- and emotion-focused coping used in a specific episode" (p. 227). Their definition of coping pattern still clung to the process-contextual conception because it was a pattern characterized by a specific episode.

However, Dolan and White (1988) reported that the majority of people were consistent in the strategies they used in coping with everyday stressors, and people "who used coping strategies with a greater degree of regularity also reported their coping behavior to be more effective"

(p. 406). Then, the conception of a coping style consistent across various episodes not only provides a better understanding of the coping process, but also suggests a way to evaluate the effectiveness of coping.

In her clarifying the conceptions about coping behavior, Menaghan (1983) explicitly mentioned the concept of coping style and it was viewed as people's "generalized coping strategies", "typical, habitual preferences for ways of approaching problems", and "cross-situational, relatively stable problem-solving tendencies in individuals" (p. 159). Menaghan also pointed out that coping style is usually attained by generalizing coping strategies used by people across specific situations and it can influence the specific coping strategy chosen by an individual in a specific occasion.

Fleishman (1984) stated that the classification of coping behavior into different types raised the possibility that the antecedents and consequence of coping behavior might vary. In other words, taxonomy of coping behavior makes the investigations of coping style possible, and a coping style helps to explore why certain coping strategies are employed and why some are more effective than the others. Without a coping style, it will be pointless to find hundreds of causes and consequences for hundreds of coping strategies.

Determinants of coping. Past studies have proposed various factors that affect coping behavior. To name just a few, there are prior experience and information (e.g., Janis, 1958), social support (e.g., Brown, 1976), the personality characteristics of mastery, self-esteem, self-denial, and nondisclosure of problems (e.g., Fleishman, 1984); education and income level (e.g., Billings & Moos, 1981; George, 1980; Pearlin & Schooler, 1978), situational properties of the stress encounter (e.g., Billings & Moos,

1981; Coyne, Aldwin, and Lazarus, 1981; Folkman & Lazarus, 1980), and cultural differences (e.g., Weisz, Rothbaum, & Blackburn, 1984). Figure 2 shows some determinants of coping behavior as summarized by Clausen (1972), Weinman (1981) and Menaghan (1983). As can be seen, these summaries vary and overlap, but they can be grouped into two broader categories: situational and dispositional. Situational factors represent influences external to the coper and dispositional factors represent influences internal to the coper. Situational factors include information about the situation, the availability of social support, the type of problem, the severity of the problem and so on. Due to the special interest of the present study, only dispositional factors will be reviewed.

The most studied dispositional determinant of coping behavior is people's generalized orientations about the world and self as represented by locus-of-control, self-esteem, and the sense of mastery. It was reported that if people had a sense of mastery, had better self-esteem, and viewed the stressful encounter as controllable, they would have better adjustment and lower distress when they coped with stress (Johnson & Sarason, 1979; Pearlin et al. 1981; Turk, 1979). Fleishman (1984) also reported a modest relationship between the problem-focused and emotion-focused coping patterns and the personality characteristics of mastery, self-esteem, self-denial, and nondisclosure of problems.

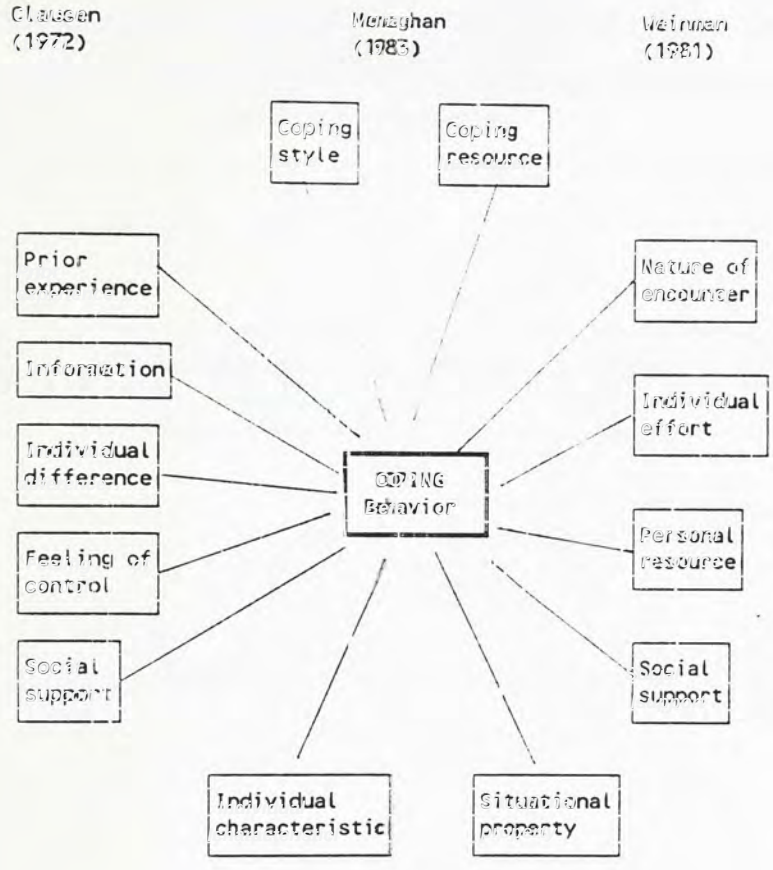


Figure 2. Different determinants of coping behavior

Both the generalized orientations about the world and self represent a cognitive process within an individual. According to the theory of psychological stress and coping developed by Lazarus and his colleagues (e.g., Lazarus, 1966, 1981; Lazarus, Averill, & Opton, 1970; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984a, 1984b; Lazarus, Kanner, & Folkman, 1980), cognitive appraisal and coping are the two important processes that mediate the relationship of stressful life-events and the immediate and long-range outcomes. Cognitive appraisal is a process through which the person evaluates whether a particular stressful life-event is relevant to his or her well-being, and if anything can be done to overcome or prevent harm or to improve the situation. Folkman and her colleagues

(1986) found that cognitive appraisal has direct influence on coping whereas coping has direct influence on whether a coping outcome is considered satisfactory or not (Figure 3).

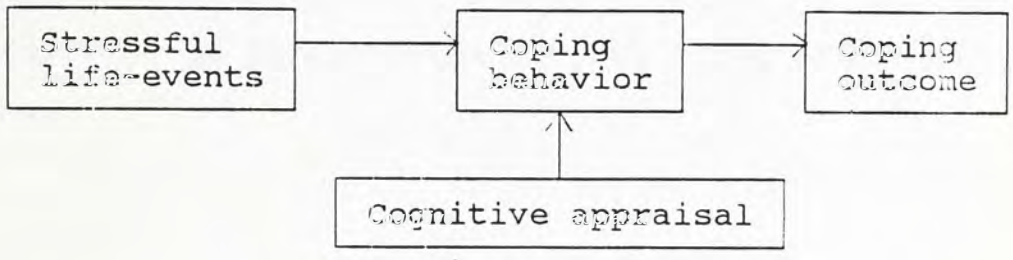


Figure 3. Theory of psychological stress and coping

The model not only explain stress as arising from demands that are appraised as taxing or exceeding one's resources, but also found out in empirical studies (e.g., Folkman et al., 1986) that cognitive appraisal was related to specific strategies chosen by people. First, they distinguished two forms of cognitive appraisal with primary appraisal representing people's evaluation of whether they have anything at stake in a stressful encounter and secondary appraisal representing people's evaluation of whether something can be done to improve the situation. Then, by using six items of primary appraisal and four items of secondary appraisal, they succeeded in finding out the relationships between the appraisals and the strategies used frequently by people (Figures 4 and 5). These relationships imply that both primary and secondary appraisals will influence people's choice of coping strategies.

Besides these specific relationships between appraisals and coping strategies, it was also reported that wher the stressful encounter was appraised at high-stake, people tended to use more self-control, escape-avoidance, and seek more social support. Because of the cognitive and explanatory nature of this appraisal process, the attribution process should have its place in the process of coping. Therefore, a broader conception of cognitive appraisal, the attributional style, was used in the present study.

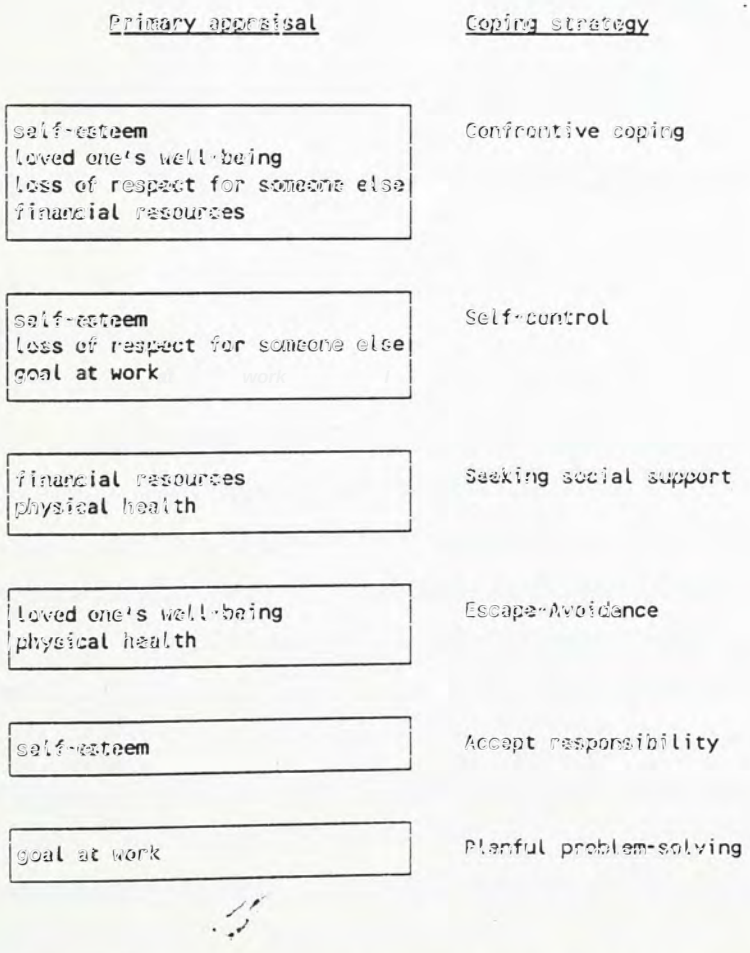


Figure 4. Relationship between primary appraisal and coping

Secondary appraisal	Coping strategy
changeable	Accept responsibility Confrontive coping Planful problem-solving Positive reappraisal
acceptable	Distancing Escape-Avoidance
need more information	Seeking social support Self-control Planful problem-solving
had to hold back	Confrontive coping Self-control Escape-Avoidance

Figure 5. Relationship between secondary appraisal and coping

Attributional style

Lazarus et al. have successfully demonstrated the effect of cognitive appraisal on coping, but their emphasis was only situation-specific. If situation-specific appraisal can influence coping behavior, then it is very likely that a more general appraisal will also have effect. Attributional style is the more general cognitive appraisal representing people's generalized tendency to interpret and explain their own behavior and the world around them. In fact, various models have been proposed to explain the unsatisfactory coping outcome of depression based on a particular attributional style called depressive attributional style. Some of the models will be discussed in the following review after a brief introduction of the concept of attribution.

Attribution theory of motivation and emotion. After Heider's (1958) introduction of the concept of attribution and the development and refinement of the concept by various theorists (e.g., Kelley, 1967, 1971, 1972, 1973; Weiner, 1974, 1979, 1980, 1986), attribution has been used widely to explain people's behavior. According to the concept of attribution, people are regarded as cognitive systems that constantly engage in the processing of information about their own behavior and the world around them. In order to feel control over their behavior and the environment, they will try to explain, understand and predict events. The explanation of event is called causal attribution.

Causal attribution not only affects the onset of certain behavior, but also influences the persistence of the behavior. As pointed out by Baumgardner (1983), people making internal and controllable attribution were expected to persist longer and be more motivated in confronting their personal problems. This persistence of behavior is especially significant when coping behavior is concerned, because people's chances of success and failure are greatly determined by what strategies they employ and by how long they are able to persist.

Weiner (1986) formulated a comprehensive model (Figure 6) about the entire process of attribution. According to his model, responses to stress follow three different courses. First, a person facing a failing life-event will be frustrated and sad and this negative emotion of sadness and frustration will affect the behavior right away. Second, for a stressful life-event, the person will try to make causal attribution about that event based on some causal antecedents; and the causal attribution made will then affect his or her behavior. Finally, the causal dimension(s) underlying the attribution made will also influence the person's reaction.

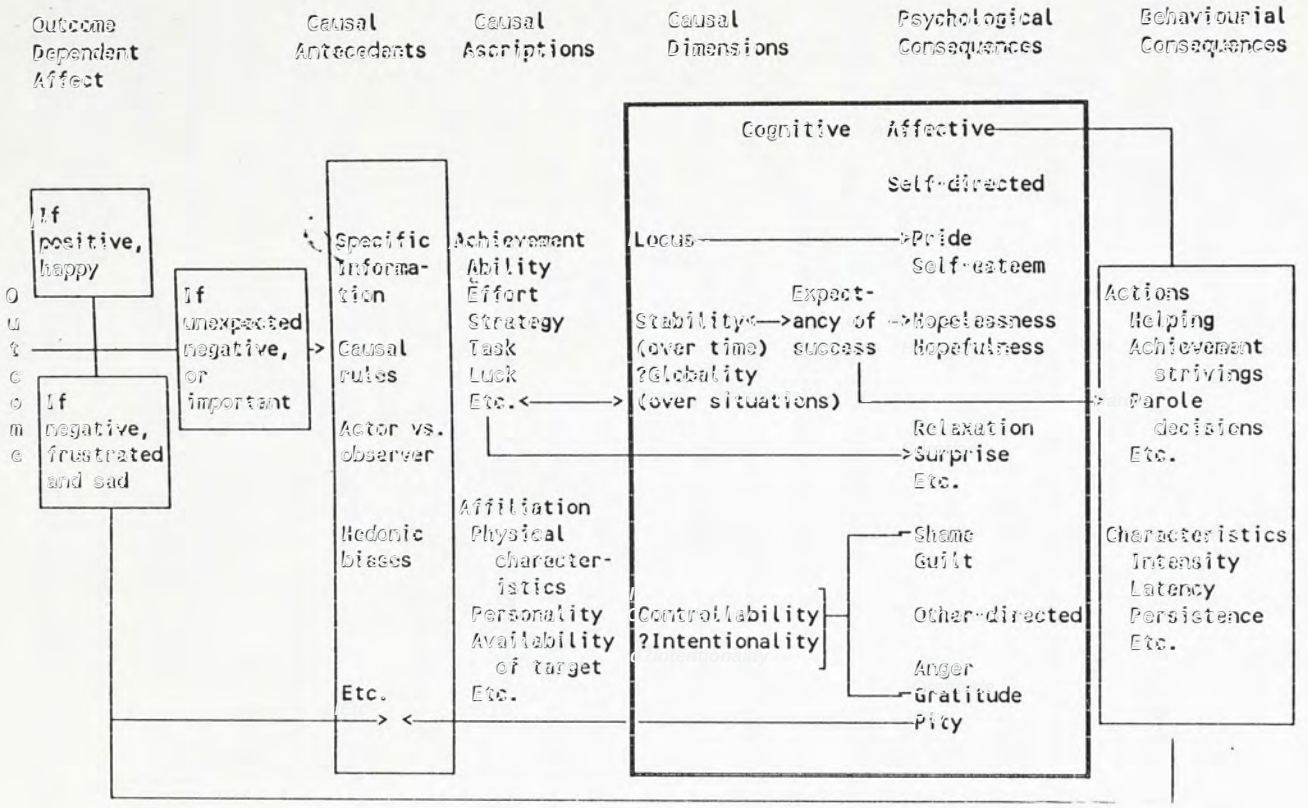


Figure 6. An attributional theory of motivation and emotion (from Weiner, 1986, p.240)

According to Weiner's model, people will try to make attributions about a particular event mostly when the event is perceived as unexpected, negative or important. Weiner's conception has in fact stipulated the event that is most suitable for attribution. Thus, the present study did not try to explain all kinds of students' behavior, but focus no the study of students' coping behavior because coping behavior is mainly the reaction to a stressful life-event and it is the kind of event that the attribution theory is supposed to explain.

The attribution process is usually biased by the attributor in order to attain the attributor's goal. For example, there may be the self-serving bias for maintaining ego-defensive motives (e.g., Krahé, 1983), the counter-defensive bias for gaining public support (e.g., Tetlock, 1980), and the group-serving bias for promoting popularity within a group (e.g., Forsyth, Berger, & Mitchell, 1981). Thus, the attribution process is not always a rational process, in Weiner's model, the concept of a not-so-rational factor, the "hedonic biases", has also been included in the causal antecedents together with other more rational factors. However, both the rational and the not-so-rational antecedents of attribution in the model are still situational-specific, a dispositional antecedent of attribution such as attributional style is neglected. In fact, some models based on this dispositional factor of attributional style have made much contribution to the understanding of coping behavior.

Learned helplessness model. Although the concept of attribution has been used in numerous researches about human behavior ranging from clinical explorations to business applications, it was only widely employed in the studies of depression after the concept of depressive attributional style was suggested. One of the important models for depression based implicitly on a depressive

attributional style was the learned helplessness model (Seligman, 1975). It assumed that people have the need to feel control over their environment, so when they come to expect that certain event is out of control, hopelessness and depression may arise. That is, if people make uncontrollable attribution(s) for negative life-events, they will feel hopeless and depressed.

The learned helplessness model can explain the onset of depression, but it cannot explain the variations of self-esteem loss in depression as well as the differences in severity, length and effects of depression. Thus, the learned helplessness model was reformulated (Abramson, Seligman, & Teasdale, 1978; Miller & Norman, 1979). Instead of using the causal dimension of controllability as in the original model, the reformulated model uses other three causal dimensions. The locus-of-control dimension (internal vs. external) is used to explain the variation for both the maintenance and loss of self-esteem accompanying depression; the stability dimension (stable vs. unstable) is adopted to account for the persistence of depressive symptoms; the globality dimension (global vs. specific) is employed to explain the effects of depression across different situations. In addition to the three causal dimensions, the perceived degree of importance attached to the event being attributed is used to account for the severity and intensity of the depressive symptoms.

The reformulated learned helplessness model implies a characteristic depressive attributional style which is a tendency to make internal, stable and global attributions for failures (Abramson et al., 1978) and make external, unstable, and specific attributions for successes (Seligman et al., 1979). It was found that people with a vulnerable cognitive style (a depressive attributional style) are particularly prone to become depressed when they face stressful life-events (Peterson & Seligman, 1984). Women

facing abortion were also reported to cope better if they did not make internal and stable attributions for their pregnancies (Major et al., 1985). In a recent meta-analytic review of over 100 studies about attribution and depression; Sweeney et al. (1986) found that people's tendency of making internal, stable, and global attributions for negative events and external, unstable, and specific attributions for positive events had a reliable and significant association with depression.

People tend to blame others (making external attributions) for failure and credit themselves (making internal attributions) for success; this is called the self-serving bias in the process of attribution. This self-serving bias is so natural that even very young children at the age of six exhibited it in their attributions for success and failure (Weisz, 1981a). The reason is that self-serving bias is significant for the protection and maintenance of one's self-esteem. As high self-esteem is "innately satisfying and pleasurable" (Rosenberg, 1979, p. 57), people want to think well of themselves. By blaming others for failure, self-esteem will not be endangered; and by crediting oneself for success, self-esteem is enhanced.

However, various researches reported that depressed people do not exhibit this self-serving bias when making attributions (e.g., Klein et al., 1976; Kuiper, 1978; Rizley, 1978; Seligman et al., 1979). Depressed people were found to be more attributionally evenhanded in their attributions (Kuiper, 1978; Raps et al., 1982). That is, they made attributions of equal causal dimensionality for both success and failure. Arkin et al. (1980) even found a reversal of the self-serving bias among socially anxious individuals; that is, depressed people tend to blame themselves for failure and credit others for success. For these reasons, the depressive attributional style can be

viewed as a reflection of a counter self-serving bias in attribution. People with depressive attributional style tend to be depressed because their styles of attribution prevent them from utilizing the self-serving bias in the process of attribution. As a result, their self-esteem is not protected, and they are prone to depression.

As these two tendencies of making attribution are mainly used by researchers to explain the onset or persistence of depression, they are called depressive attributional style. The tendency to make internal, stable, and global attributions for negative events is called "negative depressogenic", and the tendency to make external, unstable, and specific attributions for positive events is called "positive depressogenic". Most studies reported a stronger relationship between depression and negative depressogenic than that between depression and positive depressogenic (e.g., Seligman et al., 1984), but contradicting evidences have also been reported (e.g., Friedlander, Traylor, & Weiss, 1986). Therefore, the depressive attributional style employed in this study embraced both negative and positive depressogenics.

Hopelessness theory of depression. The original and reformulated learned helplessness models proposed that depressive attributional style and depression are somehow related; however, they have not stated precisely what kind of relationship it is. Alloy, Abramson, Metalsky, and Hartlage (1988) suggested another modification of the model. They argued that neither depressive attributional style nor stressful life-event is sufficient to cause depression. Instead, the sufficient cause for depression is the expectation of hopelessness. Due to the critical role they gave to the expectation of hopelessness, they called their modification the hopelessness theory of depression (Figure 7).

In their model, the expectation of hopelessness is defined as "an expectation that highly desired outcomes are unlikely to occur or that highly aversive outcomes are likely to occur and that no response in one's repertoire will change the likelihood of occurrence of these outcomes" (p. 7). This expectation of hopelessness has one major proximal contributory cause, it is the causal attributions made for an important negative event. Depressive attributional style and stressful life-event are only distal contributory causes for causal attribution. In real life, people are not making attributions solely according to their styles of attribution, they will also take into consideration all situational information. Thus, the causal attribution of a specific negative event is a joint function of the situational information surrounding the event and the existing attributional style (Alloy & Tabachnik, 1984; Metalsky & Abramson, 1981). However, Alloy et al. (1988) argued that given the same situational cues, people exhibiting the depressive attributional style are more likely to make depressive attributions.

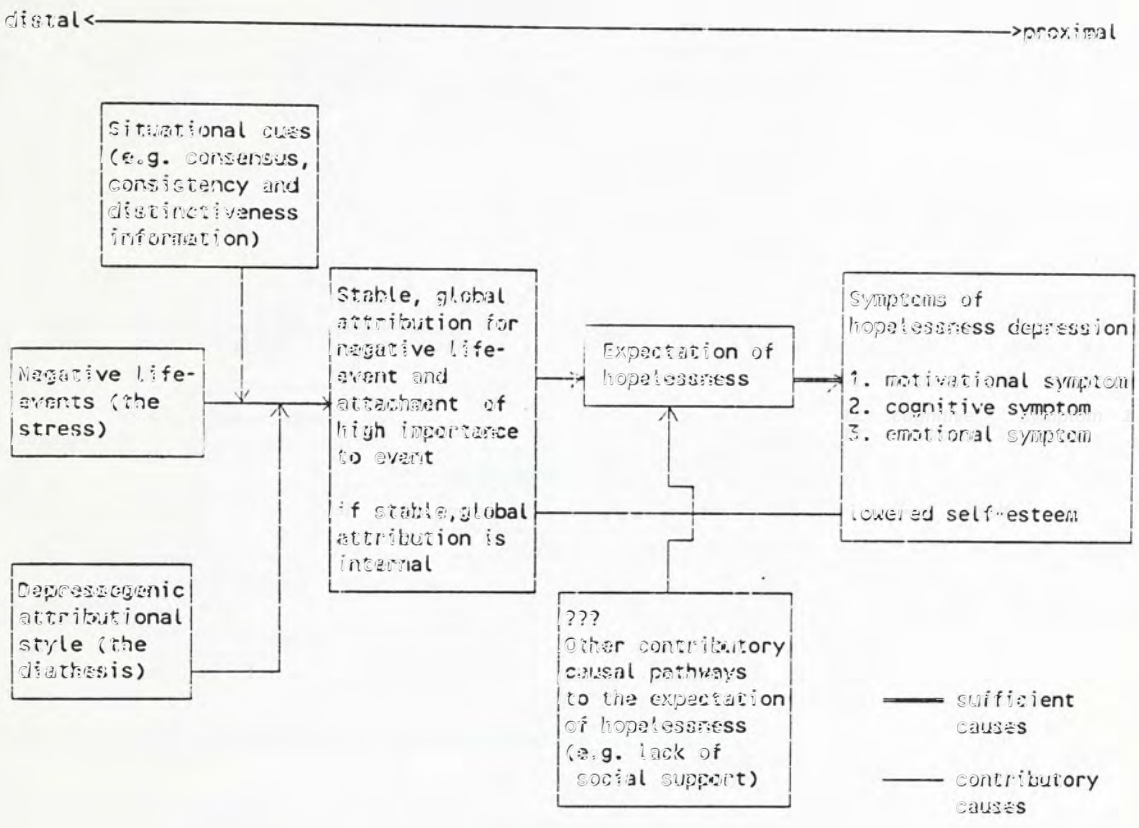
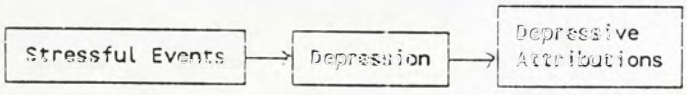


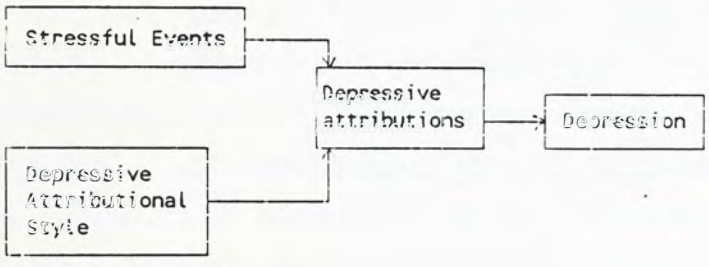
Figure 7. Causal chain of the hopelessness theory of depression. (from Alloy et al., 1988, p.8)

Recovery and coping models. Logically speaking, the three phenomena, stressful life-event, attributional style, and depression, can be combined into different models other than that suggested by Alloy et al. Parry and Brewin (1988) illustrated three of them (Figure 8): the symptom model, the vulnerability model, and the alternative aetiologies model.

Symptom Model



Vulnerability Model



Alternative Aetiologies Model

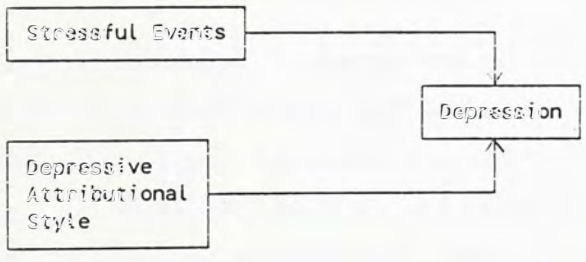


Figure 3. Models for attributional style and depression.

The symptom model suggests that depressive attributional style is the result of depression rather than a pre-existing vulnerability, and it does not act synergistically with stressful events. The vulnerability model points out that only the co-existence and interaction of stressful life-event and depressive attributional style can produce depression, stressful life-events or depressive attributional styles on their own will be relatively much less depressogenic. The alternative aetiologies model suggests that depression can be caused either by a severely

stressful life-event or alternatively by the pre-existing cognitive vulnerability, that is, both the stress and depressive attributional style can operate as independent provoking factors.

According to Parry and Brewin (1988) as well as some other researchers (e.g., Cutrona, 1983; Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982), attributional style was found to be directly related to depression in a way that did not depend on the interaction with a stressful life-event. Moreover, stress was found to be able to increase the risk of depression onset irrespective of the individual's attributional style (Dohrenwend & Dohrenwend, 1974). Thus, the alternative aetiologies model seems to be the most appropriate model to describe the relationship among stress, depressive attributional style, and depression.

As stressful life-event and depressive attributional style have independent effects on coping, the present study focused on the depressive attributional style and the effect of the stressful life-event was ignored. Brewin (1985) in fact suggested other two models which do not consider the stressful life-event as significant: the recovery model and the coping model (Figure 9). Although these two models ignore the role of stressful life-event, they signify the important role of coping. The recovery model assumes the onset of depression, and attributional style can influence how long depression will persist; that is, a less depressive attributional style is important for a faster and better recovery from depression. On the other hand, the coping model does not presuppose the onset of depression, but points out that attributional style can determine whether depression will take place and how long it will persist. In other words, a less depressive attributional style is not only significant for the recovery from depression but also significant for the

prevention of depression. Both these two models exemplify the notion that attributional style can be treated as coping resource for people to cope with stress, effective use of this coping resource determines whether the stress will be successfully coped or not.

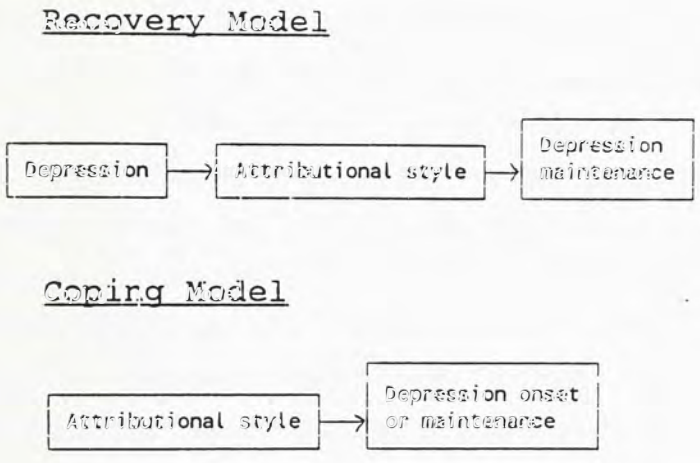


Figure 9. The recovery and coping models

Self-concept discrepancy

Although the model suggested by Alloy et al. (1988) has detailed the mechanism for the onset of helplessness depression and suggested that depressive attributional style is a very important contributory cause for the expectation of hopelessness, there are still other contributory causes not mentioned in the model. They did mention the availability of social support as a possible pathway. However, another significant contributory pathway, self-concept discrepancy, was employed in the present study. Self-concept discrepancy was chosen because it embraces different aspects of self-concept and encompasses some important self-related constructs that have relationship with coping and attributional style.

Nevertheless, the concept of self-concept discrepancy rests on the assumption that self-concept is multidimensional and multifaceted. Therefore, a multidimensional model of self-concept and the real and ideal selves dichotomy will also be discussed in the following review.

Self-concept and coping. Langer (1969) summarized three perspectives for human development: "man grows to be what he is made to be by his environment" (p. 4); "man develops to be what he makes himself by his own actions" (p. 7); "man is a conflicted being who is driven to action and growth both by his own passions or instincts and by external demand" (p. 10). Theories of self-concept development usually employ the last perspective. Although both the "knower" and the "known" are internal to the same individual, self-concept does not develop entirely out of the internal realm of an individual. Interaction with the external world has great impact on the formation of self-concept. Cooley's (1902) notion of "looking-glass self" suggested that an individual is perceiving himself in the way that others perceive him. Self-concept is also viewed as arising in social interaction because of people's concern about how others react to them (Mead, 1934; Sullivan, 1953).

Besides the consensus on self-concept development, most people also admit that self-concept is one of the most significant factors that influence how people view themselves and the world, and how people behave. Self is the set of cognitive structures that organize, modify, and integrate various functions of the person (Epstein, 1973). Therefore, knowing what one knows about oneself helps to know one's behavior.

Being one of the coping resources (Menaghan, 1983), the generalized attitude about self can affect people's coping style and coping effort. In the relationship

between general ego strength and coping styles, Worden and Sobel (1978) stated that people with higher ego strength tended to use more problem redefinition to cope with stress but fewer emotional suppression, externalization of blame and fatalistic acceptance of problem. It was also suggested that a poor self-concept leads to a generalization of hopelessness from a specific event to other aspects of an individual's life which makes people cope less well and gives rise to depression (Becker, 1979; Brewin & Harris, 1978). Wortman and Dintzer (1978) reported that coping behavior is affected by one's expectation of the ability to cope successfully with the stress. It was also suggested that perception of one's ability to resolve problematic situations was related to the way how people cope with problems (Butler & Meichenbaum, 1981; Heppner & Petersen, 1982). Moreover, Bandura (1977, 1982) found that self-perceptions of personal ability to solve problem affect both the initiation and persistence of coping behavior.

This generalized attitude about oneself can determine how much effort people will make and how long they will persist in face of obstacles or adversive circumstances. However, people not only have generalized orientations about themselves, but also have the motive to present themselves in such a way that make other people perceive them as such; this made Baumeister and Tice (1986) distinguish public self from private self and made Arkin and Baugardner (1986) develop theories about human behavior based on this self-presentation motive. Due to this self-presentation motive, when people face stress, their coping behavior will be affected if they have the motive to present or to preserve a certain public image. For example, if a person wish to present a public self as a strong, capable and independent person, then it is very unlikely that he or she will seek social support when facing difficulty.

Self-concept and attributional style. Besides the self-presentation motive, human being has another innate self-concept motive; it is the self-consistency motive (Rosenberg, 1979). Self-consistency motive is the motive to "protect self-concept against change or to maintain one's self pictures" (p. 57). That is, people will interpret the world in accordance with their self-concepts. As attributional style is the general tendency of how people interpret the world, the relationship between people's self-concept and the way they explain things implies the relationship between self-concept and attributional style. Furthermore, as self-concept is shaped and modified by external stimuli and attributional style is a significant mediator between stimuli coming from the environment and responses taken by the individual, it is reasonable to expect attributional style to be a mediator between external stimuli and internal self-concept. For example, an encounter of failing experience does not necessarily lower one's self-concept, it depends on how the failure is perceived and explained.

Although the exact causal pathway is not known, attributional style and self-concept can be treated as two closely related constructs; that is, how people look at themselves is closely related to how they look at the world. Empirical findings do lend support to this idea: For example, Baumgardner, Heppner and Arkin (1986) reported that people with positive self-evaluation tend to make internal, unstable, and controllable attributions and they also showed a more pronounced self-serving bias in their attributions. As self-serving bias in attribution is necessary for the maintenance of self-esteem (Zuckerman, 1979), people with negative self-evaluation will not have the need or motivation to maintain self-esteem, so they lack the self-serving bias in their attribution (Abramson

& Alloy, 1981). This relationship between attributional style and self-concept made Tennen and Herzberger (1987) conclude that self-esteem is the best predictor of depressive attributional style. Furthermore, Brewin (1986) even argued that depressive attributional style may be a reflection of negative self-evaluation rather than mere causal judgments; that is, the relationship between attributional style and depression may be spurious.

Dimensionality of self-concept. The above mentioned self-related constructs such as self-esteem, self-efficacy and self-evaluation are the examples of one approach to study self-concept. It treats self-concept as a unidimensional construct and it is mostly represented by the global self-esteem or the perception of particular ability. This approach usually used open-ended, spontaneous listing of self-attributes to measure self-concept (e.g., Bugenthal & Zelen, 1950; Kuhn & McPartland, 1954). The merit of this method is that it can assess self-attributes that are important to the individual (Higgins, Bond, Klein, & Strauman, 1986).

Another approach to study self-concept is more structured and it assumes the multidimensionality of self-concept. Self-concept is measured according to an explicit assumptions of self-structure and the focus is on individual self-concept component. Shavelson's model (Shavelson, Hubner, & Stanton, 1976) can be regarded as the most influential multidimensional self-concept model. According to the model, self-concept is organized and structured, and it is multidimensional and arranged hierarchically with the general and stable self-perceptions at the top and the specific and unstable at the bottom. The self-concept components as suggested by the model are summarized in Figure 10. However, younger people may exhibit self-concept that is not as differentiated as that among older people.

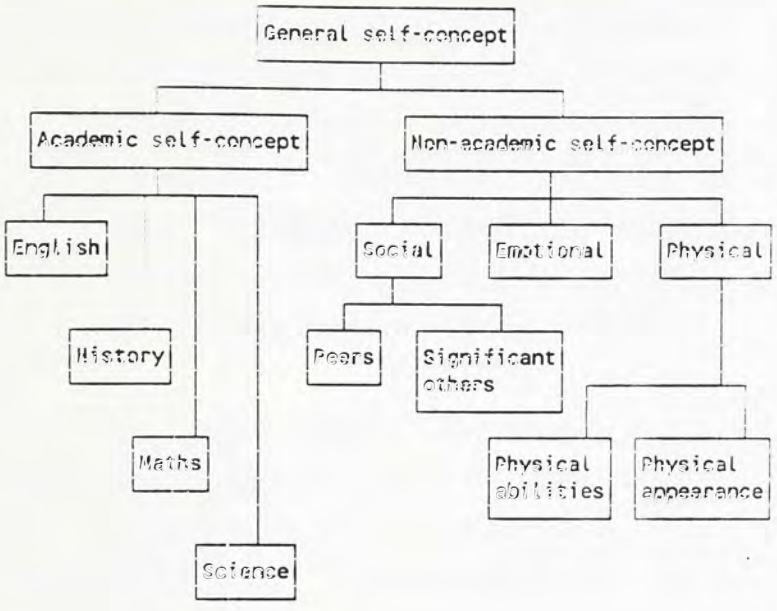


Figure 10. Hierarchical self-concept model of Shavelson et al.

Real and ideal selves dichotomy. Besides treating self-concept as multidimensional, it can also be treated as multifaceted. That is, people have different self-concepts with different reference points. The two most studied facets of self-concept are the real and ideal selves. In fact, there is a long history in psychology of distinguishing self-concept of one's perception from self-concept of one's aspiration. As mentioned before, human being has different self-concept motives such as the self-esteem motive, the self-consistency motive, and the self-presentation motive. However, it is necessary to have a reference point against which self-esteem can be evaluated, self-consistency be judged, and self-presentation be directed. Ideal self has invariably become the reference point, and it represents a spur to action, a goal state to perceive, and a pull of the future.

There was much interest in the past to explore the discrepancy between the real self and the ideal self. It

was noted that disappointment and distress in life arises when there is discrepancy between the real and ideal selves (e.g., Cooley, 1902; Mead, 1934). It was also reported that successful therapy resulted in the reduction of this discrepancy (e.g., Butler & Haigh, 1958; Friedman, 1955; Rogers, 1954). Nevertheless, it is the series of studies conducted by Higgins and his associates (e.g., Higgins et al., 1986) about self-concept discrepancy which has much bearing on coping behavior.

Higgins' self-discrepancy theory suggests that "a self-discrepancy is a cognitive structure that represents a psychological situation, with different self-discrepancies representing different psychological situations . . . . Like any cognitive construct, when a self-discrepancy reaches a threshold level of activation it is ready to be used to interpret stimulus events" (Higgins et al., 1986, p. 13). That is, they believed that self-concept discrepancy can be activated like any other cognitive structures through chronic accessibility or contextual priming (Higgins, Bargh, & Lombardi, 1985; Higgins, King, & Mavin, 1982).

Real and ideal selves are only two of the possible aspects of the self, there can be other aspects of the self such as moral and perceived selves (Rosenberg, 1979), public and private selves (Baumeister & Tice, 1986), undesired self (Ogilvie, 1987), possible self (Markus & Nurius, 1986) and so on. In order to have a more coherent and systematic framework to study self-concept discrepancy, two cognitive dimensions were suggested by Higgins et al. (1986). The first dimension is the domains of the self which consists the actual-self, ideal-self, and ought-self. The second dimension is the standpoints on the self which consists the own-standpoint and the other-standpoint.

The three domains and the two standpoints can be combined to form six possible self-state representations (actual/own, actual/other, ideal/own, ideal/other, ought/own, and ought/other). According to Higgins et al., the first two self-states, particularly actual/own, are the typical self-concept, whereas the other four can be regarded as self-guides. In their model, people are motivated to reach a condition that minimizes the discrepancy between their actual self-state and their ideal and ought self-states, that is, self-concept matches self-guides. If there are mismatches, then self-concept discrepancies exist. Logically speaking, any two self-states can constitute a discrepancy, therefore there can be 15 different self-discrepancies representing different psychological situations. The 15 possible self-discrepancies can be represented by Figure 11, note that every line in the figure that joins two self-state representations represents a type of self-concept discrepancy.

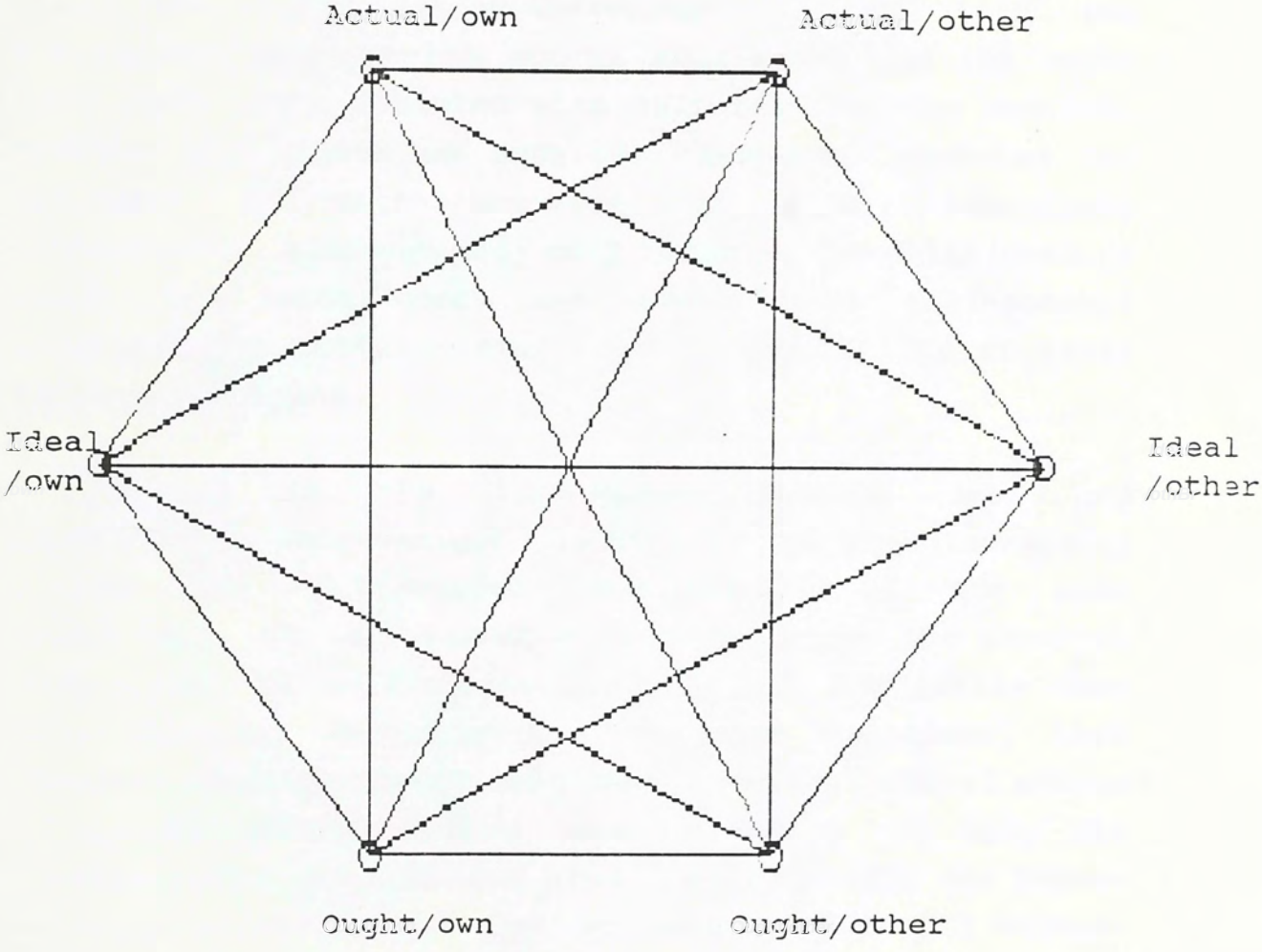


Figure 11. The 15 types of self-concept discrepancy

Higgins et al. (1986) showed that the magnitude, accessibility and types of discrepancy can influence people's emotion. They found that the discrepancy between the actual self-state and the ideal self-state was correlated with dejection-related affects; and the discrepancy between the actual self-state and the ought self-state was correlated with agitation-related emotion. Besides the effect on emotion, they also reported the influence of self-discrepancy on actual behavioral performance. Although they only reported the relationships found for actual/ought and actual/ideal self-concept discrepancies, they pointed out the possibility of other discrepancy types.

Stress is the discrepancy between self and environment, self-concept discrepancy is the discrepancy within the multifaceted self-concept of the same individual. It is reasonable to suggest that the internal discrepancy of self-concept will affect how people cope with external discrepancy. In some occasions, this internal discrepancy may even constitute an internal source of stress because stress should include not only the imposed goals and standards from others but also the demand we place on ourselves. For its relationship with stress, its representation of different self-concept facets, and its relationship with attributional style; self-concept discrepancy was chosen in this study to explore students' coping behavior. Both attributional style and self-concept discrepancy are people's significant coping resources, the former is people's generalized attitude about the world and the latter is people's generalized attitude about themselves.

Framework of the study

Model of the study

By integrating the main ideas suggested by Pearlin et al. (1981), Weinman (1981), Folkman et al. (1986), Monaghan (1983), and Alloy et al. (1988); the general model of stress process assumed by the present study is shown in Figure 12. The model implies that the relationship between stressful life-event and depression is mediated by coping behavior, and coping behavior is influenced by a set of situational factors and a set of dispositional factors.

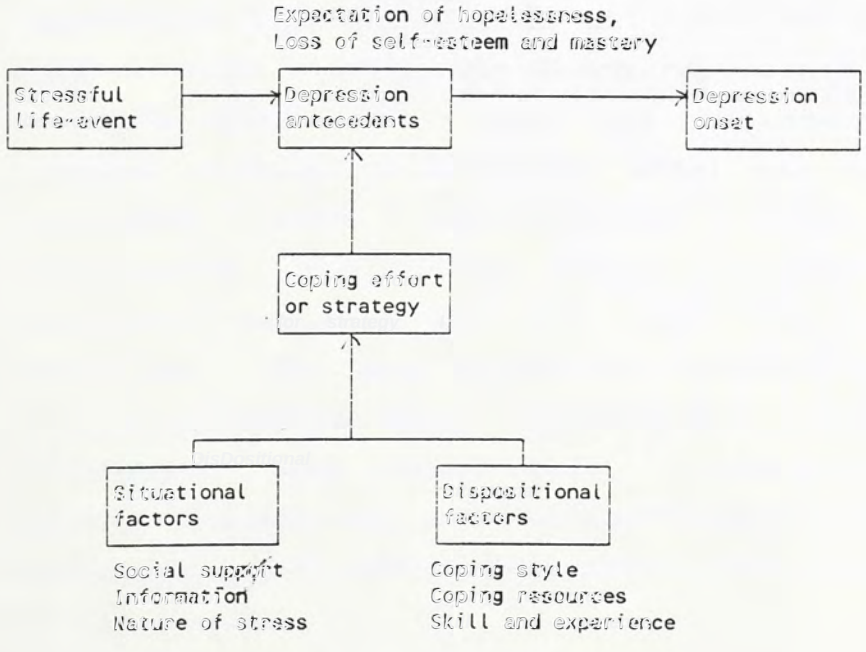


Figure 12. A general stress process

The present study only emphasized the dispositional factors in this stress process, the nature and effect of stressful life-event, the outcomes and antecedents of depression, the specific coping strategies chosen for specific episode, and the situational factors were all ignored. However, due to the fact that stressful life-event is the starting point of the whole process, so the students were still activated to think of stressful life-event when they were asked to report their general coping behavior. Nevertheless, the stressful life-events activated were restricted to students' experience of failures in achievement and interpersonal settings.

As pointed out by Menaghan (1983), both coping style and coping resources have effects on the specific coping efforts employed, and coping resources may also have effect on coping style. The present study aimed mainly at exploring the effects of coping resources on coping styles. The two coping resources are attributional style which represents the generalized attitudes about the world and self-concept discrepancy which represents the generalized attitude about self. Thus, for this specific interest, a limited version of the full model was used. The three variables were attributional style, self-concept discrepancy, and coping style. Coping style was the dependent variable and the other two were independent variables. The main purpose of this study was to explore the relationship among attributional style, self-concept discrepancy, and coping style. It was expected that self-concept discrepancy and attributional style have influence on coping style both independently and jointly as depicted by Figure 13.

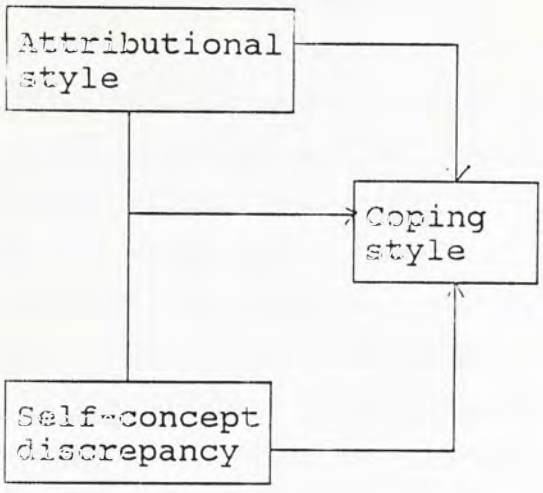


Figure 13. Model used for the present study

Definitions of Terms

Coping style. coping behavior is "the cognitive and behaviorial efforts to master, tolerate, or reduce external and internal demands and conflicts among them" (Folkman & Lazarus, 1980, p.223); it is "the person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources" (Folkman et al., 1986, p.993). In other words, coping behavior refers to "both overt and covert behaviors that are taken to reduce or eliminate psychological distress or stressful conditions" (Fleishman, 1984, p.229)

Coping style is defined in the present study as the generalized and relatively stable strategies that people use to master, tolerate, or reduce external and internal demands and conflicts among them across various situations.

Self-concept discrepancy. Higgins et al. (1986) proposed three domains of the self and two standpoints on the self which can be combined to form six self-state

representations: actual/own, ought/own, ideal/own, actual/other, ought/other, and ideal/other. Actual/own is people's beliefs concerning the attributes they think they actually possess (the self-concept). Ought/own is people's beliefs concerning the attributes they think they should or ought to possess (the normative rules or prescriptions). Ideal/own is people's beliefs concerning the attributes they would like ideally to possess (the ultimate goals). Actual/other is people's beliefs concerning the attributes they think a significant other would think they actually possess. Ought/other is people's beliefs concerning the attributes they think a significant other would think they should or ought to possess. Ideal/other is people's beliefs concerning the attributes they think a significant other would like them ideally to possess.

Self-concept discrepancy is defined in the present study as the situation where any two self-state representations mismatch.

Attributional style. Causal attribution is the explanation given by an individual for the occurrence of an event. The attributions made can be classified according to certain underlying properties or characteristics called causal dimensions. Attributional style is defined as the general tendency exhibited by an individual to make attributions consistently along certain causal dimension(s).

The attributional style which is of particular interest to investigators studying coping behavior is the depressive attributional style. People who exhibit this attributional style are more likely than those who do not to attribute any negative event to internal, stable, and global factors (negative depressogenic). A logically derived depressive attributional style is to attribute any positive event to external, unstable, and specific factors (positive depressogenic).

Method

Subjects

The sample consisted of 485 10th-grade students (mean age 15.9) of which 255 were girls and 230 were boys. They were chosen for this study because they were old enough to have more developed and differentiated self-concepts about themselves. Moreover, they were not in the final year of their high school studies, so they were not bothered so much by the pressure of public exams and they would be more willing to take part in the study. The sample was chosen according to a stratified scheme to control for the factors of socioeconomic status (SES), academic ability, subjects taken in school, and sex.

Different types of school in Hong Kong more or less reflect students' different SES and academic ability, so ten secondary schools were selected for this study in which two were government subsidized schools that were prestigious within a specific locality (they were mostly schools with outstanding performance in public exams or extra-curricular activities), six were normal government subsidized schools (they were mostly newly established schools with standardized facilities), and two were government subsidized schools below the standard recognized by most people (they were mostly private schools before government subsidization and they usually have less facilities and students of weaker academic abilities). Neither elite schools with long history and superior resources nor private schools with poor conditions were included in this sample. The sample chosen was

representative of the majority of secondary schools in Hong Kong.

Procedure

Two intact 10th-grade classes (about 80 students) were chosen from nine of the ten schools and one intact class was chosen from the remaining school. Students were asked to complete the battery of tests during one normal class period which was about 35 to 40 minutes. The teacher would read the instructions to the students and tell them to begin.

Measures

The battery of tests given to the students consisted of three tests: the Ways of Coping Scales (Folkman et al., 1986), the Self Description Questionnaire III (Marsh & O'Neill, 1984), and the Attributional Style Questionnaire (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982).

All items from the ASQ and WOC were translated into Chinese (Appendix B, C), and due to the reasons mentioned later in this chapter, only the positively worded items of nine selected self-concept dimensions from the SDQIII were translated into Chinese (Appendix A). All items in the three Chinese versions were then back-translated into English (the WOC and the SDQIII were back-translated by two students of translation, and the ASQ was back-translated by a teacher of English) and compared with the original ones. The back-translated items showed that the Chinese versions can adequately reflect the meanings of the original ones.

Ways of coping (WOC). Drawn in part from a diverse literature and their own theoretical framework, Folkman and Lazarus (1980) designed an instrument to measure coping behavior. It was called the Ways of Coping. After five years, several new items were added to the instrument and it was revised by rewording or deleting some ambiguous and redundant items (Folkman & Lazarus, 1985).

The WOC has been used in a number of samples with different demographic background such as middle-aged community sample (Folkman & Lazarus, 1980), college students (Folkman & Lazarus, 1985), and middle-aged married couples (Folkman, Lazarus, Gruen, & DeLongis, 1986). Most factor analyses of the WOC items have identified between six to nine factors, so "it is a tribute to the robustness of the scale that the same themes and fairly similar numbers of factors reemerge across samples varying in age and type of problems being faced" (Aldwin & Revenson, 1987, p. 340).

The instrument as reported in 1986 consists of 50 items for eight coping scales with alpha reliability ranging from .61 to .79 (median alpha = .70). The meanings of the eight scales as defined by Folkman et al. (1986, p. 995) are listed below:

Confrontive coping describes aggressive efforts to alter the situation and suggests a degree of hostility and risk-taking.

Distancing describes efforts to detach oneself and create a positive outlook.

Self-control describes efforts to regulate one's own feelings and actions.

Seeking social support describes efforts to seek informational, tangible, and emotional support.

Accepting responsibility acknowledges one's own role in the problem and try to put things right.

Escape-Avoidance describes wishful thinking and behavior.al efforts to escape or avoid.

Planful problem-solving describes deliberate problem-focused efforts to alter the situation.

Positive reappraisal describes efforts to create positive meaning by focusing on personal growth.

In a previous study (Folkman & Lazarus, 1985), the eight scales were named Problem-focused, Wishful thinking, Distancing, Emphasizing the positive, Self-blame, Tension-reduction, Self-isolation, and Seeking social support. On the other hand, in the study of Aldwin and Revenson (1987), the eight scales were termed Escapism, Cautiousness, Instrumental action, Minimization, Support mobilization, Self-blame, Negotiation, and Seeking meaning. Although various investigators named the scales differently, the names and meanings were more or less the same.

The WOC was translated into Chinese and used in the present study. The Chinese version consists of all 50 items from the WOC (Folkman et al., 1986), there was a short introductory paragraph at the beginning of the questionnaire which tried to activate the students' feeling of failures in daily life (both failures in interpersonal and achievement settings were mentioned), and then they were asked to indicate the frequency of using each coping item in their everyday coping with failure on 4-point Likert scales (0 = not used; 1 = used somewhat; 2 = used quite a bit; 3 = used a great deal).

Scores for each scale were calculated by averaging the ratings of all items belong to the same scale. However, the reliabilities of the WOC scales found in this study were not so good, so seven items (Item 37 for Confrontive, Item 8 for Distancing, Item 17 for Seeking Social support, Item 42 for Accepting responsibility, Items 12 and 25 of

Escape-Avoidance, Item 48 for Positive Reappraisal) were discarded to improve the reliabilities. The final reliabilities and intercorrelations of the eight scales are shown in Table 1. Some of the scales were still unsatisfactory such as Confrontive coping and Self-control. Therefore, only the four scales with alpha coefficients greater than or equal to .60 were chosen in the final analysis.

Table 1
Reliabilities and Intercorrelations of WOC

Coping Scales	Reliability	Coping Scales 1	2	3	4	5	6	7
1 Confrontive coping	.42							
2 Distancing	.58	04						
3 Self-control	.42	19**	23**					
4 Seeking social support	.67	34**	08	23**				
5 Accepting responsibility	.51	16**	05	24**	28**			
6 Escape-Avoidance	.60	40**	11*	22**	06	04**		
7 Planful problem-solving	.69	16**	13**	43**	33**	35**	- 01	
8 Positive reappraisal	.66	24**	31**	30**	39**	34**	09	54**

Note. N = 485. Decimals and diagonal entries for correlations were omitted.
Reliabilities were estimated by Cronbach's coefficient alpha.
* p<.005; ** p<.001, two tailed.

The low reliability of some scales may be due to the reason that the sample of this study was only 10th-grade students, their life experience and particularly experience of stressful encounters and coping was not so adequate, therefore they might have less differentiated coping strategies.

Attributional Style Questionnaire (ASQ). With their interest in the depressive attributional style suggested by the reformulated learned helplessness model, Peterson et al. (1982) designed the Attributional Style Questionnaire (ASQ) which claimed to be a reliable and valid instrument for measuring attributional style.

The ASQ consists of 12 hypothetical events in which four are good achievement events, four are bad achievement events, four are good affiliation events, and four are bad affiliation events. Students in this study were asked to imagine that these events really happened to them and give reasons for these events. Then they were asked to rate their own reasons according to the causal dimensions of internality, stability, and globality. They were also asked to rate the importance of the events as if the events really happened to them.

Previous instruments measuring attribution always provided the subjects with possible causes (e.g., ability, effort, luck, and task difficulty) to choose from. Causal dimensions were attained by classifying the causes according to some corresponding predetermined causal dimensions as suggested by Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971).

However, when he later mentioned some pitfalls in attributional researches, Weiner himself pointed out the danger of a priori categorization of causes without considering the situation as perceived by the subjects. Giving the dimension of stability as an example, Weiner (1983) pointed out that:

> (a) Task difficulty may be perceived as unstable, inasmuch as the situation is changing; (b) ability may be perceived as unstable, inasmuch as learning is expected to occur; (c) ability may be perceived as unstable, inasmuch as different abilities are being tapped over time; (d) effort may be perceived as stable, inasmuch as personality traits . . . are perceived as constant and intentions may be consistent over time. (p. 535)

Thus, as compared with previous instruments measuring attribution, the ASQ means a significant improvement because it does not provide the subjects with a limited number of possible causes, but just asks them to give one major cause for the situation and rate the given cause along 7-point Likert scales corresponding to the causal dimensions of internality, stability and globality.

Different combinations of scores for the 12 events can be summed into different subscales. According to Peterson et al. (1982), the Cronbach's coefficients alpha for reliability were .75 and .72 for the composite attributional style scales for good events and bad events, respectively. The alpha for the six-item subscales reflecting the three causal dimensions (internality, stability and globality) for good and bad events ranged from .44 to .69 (mean alpha = .54). Moreover, it was also reported as having good test-retest correlations.

Reliabilities for the ASQ found in this study as shown in Table 2 are similar to that given by Peterson et al. (1982). Both the dimensional subscales (internality, stability, and globality) and the composite subscales (good and bad events) were reliable enough for use. Similar to the results reported by Peterson et al., the subscales that distinguish between affiliation and achievement events were not reliable. Because the purpose of this study was on the overall attributional style rather than on the dimensionality of the style, therefore, the composite subscales were used in the present analysis.

Table 2
Reliabilities and Intercorrelations of the ASQ

ASQ Subscales	Reliability	ASQ Subscales 1	2	3	4	5	6	7
Good								
1. Internality	.55							
2. Stability	.60	33**						
3. Globality	.56	23**	09					
4. Composite	.67	75**	66**	66**				
Bad								
5. Internality	.51	-13*	08	-07	-06			
6. Stability	.74	09	-13	-03	-03	17**		
7. Globality	.63	-01	10	-36**	-15*	21**	17**	
8. Composite	.70	-02	02	-23**	-12	66**	69**	68**

Note. N = 485. Decimals and diagonal entries for correlations were omitted. Reliabilities were estimated by Cronbach's coefficient alpha.
* $p<.005$; ** $p<.001$, two tailed.

Self Description Questionnaire III (SDQIII). Higgins and his colleagues (Higgins, Bargh, & Lombardi, 1985; Higgins, Bond, Klein, & Strauman, 1986) used the Selves questionnaire to assess self-concept discrepancy. Their measure asked students to list up to 10 attributes of their own according to different self-states (actual, ideal, and ought), and "the self-concept discrepancy score was calculated by subtracting the total number of matches from the total number of mismatches" (Higgins et al., 1986, p. 9).

In their studies, matches and mismatches could be operationally defined in terms of a thesaurus, but for the present study which was conducted in Chinese, it was difficult to find something similar to a thesaurus, so synonyms and antonyms would be difficult to determine.

They used the method of spontaneous listing of self-attributes because they thought it would increase "the likelihood that the attributes would be important to each subject" (Higgins et al., 1986, p. 8). However, this method of spontaneous listing of self-attributes will create problems for comparison across individuals if different subjects make self attributes of different

dimensions. For example, if a student lists all 10 attributes about the physical appearance, there may be very little discrepancy; but if the student is asked to list attributes about his or her relations with peers, there may be great discrepancy.

Due to the lack of a suitable Chinese thesaurus and the uncertainty about the comparability of self attributes listed across self-concept dimensions and across individuals, another measure of self-concept discrepancy was employed in this study.

Marsh and his colleagues have designed a series of self-report instruments to measure the multidimensional self-concepts according to the hierarchical model of Shavelson (Shavelson & Bolus, 1982; Shavelson et al., 1976). The SDQ measures seven components of preadolescent self-concept (Marsh & Shavelson, 1985; Marsh, Parker, & Smith, 1983); the SDQII measures 11 components of adolescent self-concept (Marsh, Parker, & Barnes, 1985); and the SDQIII measures 13 components of late adolescent self-concept (Marsh & O'Neill, 1984).

SDQIII represents the latest development of the SDQ series of measurements which is most refined and in fact has included all self-concepts dimensions of previous measurements. For these reasons, SDQIII was used in the present study. SDQIII measures the following 13 dimensions of adolescent self-concept: General Self-Concept, Mathematics, Verbal, Academic, Physical Abilities, Physical Appearance, Relations with Same Sex Peers, Relations with Opposite Sex Peers, Relations with Parents, Honesty, Emotional Stability, Creative Thinking, and Religion. According to Marsh and O'Neill (1984), all the 13 scales were reliable (median alpha = .89), and correlations among the 13 scales were small (median r = .09). The original SDQIII consists of 136 items.

As SDQIII was originally designed for late adolescents, the subjects of this study would be too young to have such differentiated self-concept. Moreover, self-concept discrepancy rather than the particular dimensions of self-concept was the primary focus of the present study. Therefore, only 9 of the 13 self-concept dimensions were selected for the present study. They were Mathematics (MATH), Verbal (VERB), Academic (GSCH), Physical Appearance (PAPP), Physical Abilities (PHYA), Relations with Same Sex Peers (SAME), Relations with Opposite Sex Peers (OPPO), Relations with Parents (PARE) and General Self-Concept (GENE).

The inclusion of negatively worded items in a questionnaire is a means to disrupt response sets such as responding to all items with the same response category or with a specific pattern. However, as pointed out by Marsh himself (1986), negatively worded items are biased because they involve the use of a complicated reasoning, the "double negative logic" (p. 37). So in his study (1986), negatively worded items were still included in the questionnaire but no longer included in the actual scoring procedure.

For this study, it would be odd if the students were asked about their ideal for something negative. For example, it is too difficult for the students to understand that "My ideal to be an unhappy person is very low" is similar in meaning to "My ideal to be an happy person is not very low". Thus, in order to avoid the bias of negatively worded items and the complication of double negative logic in measuring ideal self, negatively worded items in the SDQIII were discarded in the present study.

After discarding all the negatively worded items of the nine selected self-concept dimensions, a total of 46

items were used in this study to measure the students' self-concept for four different self-state representations: actual/own, ideal/own, actual/other and ideal/other. The ought/own and ought/other self-states were excluded to simplify the present study because students may find it difficult to distinguish precisely the difference between the ought and ideal domains.

The students were asked to rate each item from four different points of view on four 5-point Likert scales from "1-Definitely False" to "5-Definitely True". They were asked to rate the items as they thought they actually (actual/own) and ideally (ideal/own) were. They were asked to name a person whose hopes or wishes for them were most relevant or meaningful to them. Then they were asked to rate how they thought that person would look at them (actual/other) and what that person would hope for them (ideal/other). Scores for each self-concept dimension of the four self-state representations were calculated by averaging the ratings of all items belong to the same dimension for the same self-state representation.

As shown in Table 3, the reliabilities for all four self-state representations were satisfactory, this implies that the SDQIII is good for use not only in measuring actual self-concept, but also in measuring ideal self-concept and perceived self-concepts (actual/other and ideal/other).

Table 3
Reliabilities of SDQIII for 4 self-state representations

Self-concept Dimension	No. of item	Reliability: Actual own	Ideal own	Actual other	Ideal other
1. Mathematics	5	.86	.79	.83	.77
2. Verbal	5	.73	.80	.74	.82
3. Academic	5	.81	.83	.84	.85
4. Physical Abilities	4	.87	.84	.88	.85
5. Physical Appearance	6	.79	.84	.80	.84
6. Peers Relations *(same sex)*	5	.77	.79	.78	.78
7. Peers Relations *(oppo sex)*	5	.85	.87	.85	.82
8. Parents Relations	5	.69	.62	.68	.73
9. General Self-Concept	6	.82	.85	.80	.81

Note. N = 485. Reliabilities were estimated by Cronbach's coefficient alpha.

Tables 4 to 10 give the correlations among and between the four self-state representations. Generally speaking, the correlations among the nine self-concept dimensions within the same self-state were not as small as that reported by Marsh and O'Neill (1984), and correlations between two self-concept dimensions from different self-states were greater if they came from the same self-concept dimensions. The median correlations among the nine self-concept dimensions for actual/own, ideal/own, actual/other and ideal/other were respectively .32, .47, .36, and .53. That is, the nine self-concept dimensions for the two actual self-states were less correlated than the two ideal self-states. This implies that students' self-concept dimensions for the actual domains were more specific whereas the self-concept dimensions for the ideal domains were more diffused.

Table 4
Correlations among the Actual/own self-state

Variable	1	2	3	4	5	6	7	8
1. MATH								
2. VERB	21**							
3. GSCH	46**	49**						
4. PAPP	30**	41**	36**					
5. PHYA	29**	23**	31**	34**				
6. SAME	21**	38**	28**	32**	41**			
7. OPPO	19**	44**	24**	45**	23**	43**		
8. PARE	11	18**	25**	13*	21**	30**	14*	
9. GENE	32**	49**	54**	48**	32**	52**	53**	33**

Note. N = 485. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Table 5
Correlations among the Ideal/own self-state

Variable	1	2	3	4	5	6	7	8
1. MATH								
2. VERB	57							
3. GSCH	69	72						
4. PAPP	55	62	57					
5. PHYA	49	43	47	43				
6. SAME	45	55	51	49	47			
7. OPPO	46	44	44	61	35	50		
8. PARE	33	37	33	28	30	39	20	
9. GENE	63	65	67	59	46	64	59	43

Note. N = 485. Decimals and diagonal entries were omitted.
All correlations were significant at p<.001, two tailed.

Table 6
Correlations among the Actual/other self-state

Variable	1	2	3	4	5	6	7	8
1. MATH								
2. VERB	32**							
3. GSCH	56**	57**						
4. PAPP	33**	45**	32**					
5. PHYA	38**	25**	30**	36**				
6. SAME	23**	43**	25**	36**	39**			
7. OPPO	22**	39**	25**	43**	29**	40**		
8. PARE	24**	31**	22**	21**	30**	38**	13*	
9. GENE	42**	56**	53**	48**	36**	53**	46**	41**

Note. N = 485. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Table 7
Correlations among the Ideal/other self-state

Variable	1	2	3	4	5	6	7	8
1. MATH								
2. VERB	60							
3. GSCH	70	74						
4. PAPP	55	65	56					
5. PHYA	54	47	50	53				
6. SAME	42	52	44	51	53			
7. OPPO	29	26	23	45	33	48		
8. PARE	54	61	60	46	48	47	18	
9. GENE	61	63	67	62	54	60	42	56

Note. N = 485. Decimals and diagonal entries were omitted. All correlations were significant at $p<.001$, two tailed.

Table 8
Correlations between Ideal/own, Actual/other and Ideal/other

	Ideal/own								
Variable	MATH	VERB	GSCH	PAPP	PHYA	SAME	OPPO	PARE	GENE
Actual/other									
MATH	31**	-01**	10*	05*	09	-01**	10**	00	13**
VERB	05	24**	13**	14*	07	17**	16**	11	21**
GSCH	11*	09	21**	09**	09**	09**	10**	04	17**
PAPP	15*	10	10	35**	17**	18**	31**	04	20**
PHYA	09*	-06**	01*	05**	53**	12**	11**	07**	04**
SAME	15*	17**	14*	17**	26*	55**	24**	21	30**
OPPO	13*	11	10	23**	15*	19**	49**	03**	21**
PARE	13**	09**	10**	01**	13**	17**	06**	53*	19**
GENE	24**	22**	21**	23**	19**	31**	27**	15*	46**
Ideal/other									
MATH	68**	43**	52**	41**	35**	35**	32**	32**	50**
VERB	40**	63**	50**	43**	26**	45**	35**	39**	50**
GSCH	50**	55**	65**	40**	33**	44**	32**	35**	53**
PAPP	42**	45**	41**	62**	37**	42**	48**	30**	50**
PHYA	44**	33**	39**	35**	71**	43**	34**	33**	44**
SAME	38**	41**	38**	40**	35**	71**	40**	38**	54**
OPPO	32**	23**	28**	38**	23**	31**	62**	24**	38**
PARE	34**	37**	39**	25**	28**	39**	18**	65**	41**
GENE	50**	50**	51**	47**	38**	52**	40**	41**	76**

Note. N = 485. Decimals and diagonal entries were omitted.
* $p<.005$; ** $p<.001$, two tailed.

Table 9
Correlations between Actual/own and other self-states

	Actual/own								
Variable	MATH	VERB	GSCH	PAPP	PHYA	SAME	OPPO	PARE	GENE
Ideal/own									
MATH	44**	14*	22**	17**	15*	17**	18**	11	30**
VERB	05	35**	17**	09	04	20**	14*	06	28**
GSCH	14*	17**	30**	09	07	13**	11**	06	26**
PAPP	06	20**	16**	35**	12**	20**	27**	05	30**
PHYA	11	12**	11	16*	65**	29**	14*	13*	25**
SAME	03	18**	11	15**	17**	57**	28**	15*	36**
OPPO	10	23**	10	34**	16**	25**	55**	02	35**
PARE	00	08**	07**	03**	08	19**	08**	65**	21**
GENE	14*	23**	22**	22**	10	29**	29**	17**	57**
Actual/other									
MATH	77**	22**	44**	29**	30**	21**	22**	14*	31**
VERB	12**	64**	40**	30**	14**	37**	37**	20**	42**
GSCH	30**	34**	69**	26**	23**	21**	22**	16*	37**
PAPP	21**	34**	27**	70**	31**	34**	46**	12**	43**
PHYA	26**	17**	25**	31**	85**	38**	25**	21**	27**
SAME	18**	30**	21**	25**	33**	81**	40**	27**	45**
OPPO	13**	34**	20**	38**	23**	31**	80**	07**	41**
PARE	16**	21**	21**	14**	23**	28**	18**	71**	33**
GENE	27**	43**	46**	41**	30**	51**	46**	32**	78**
Ideal/other									
MATH	35**	11**	19**	16**	13*	10**	11*	09**	26**
VERB	04	23**	18**	13*	00	16**	14*	17**	28**
GSCH	12	19**	29**	12**	04**	14**	10**	12	31**
PAPP	10*	19**	15**	37**	16**	20**	24**	10**	32**
PHYA	14*	16**	17**	20**	54**	26**	18**	18**	30**
SAME	03	17**	16**	14**	14**	46**	24**	22**	34**
OPPO	10	14*	17**	25**	13*	19**	44**	14*	29**
PARE	03	12**	08**	05**	07	18**	08**	47**	23**
GENE	11	25**	24**	24**	12	26**	26**	24**	53**

Note. N = 485. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Table 10
Correlations between Actual/other and Ideal/other

	Actual/other								
Variable	MATH	VERB	GSCH	PAPP	PHYA	SAME	OPPO	PARE	GENE
Ideal/other									
MATH	34**	11**	15*	20**	12	12**	06	23**	25**
VERB	05	32**	13**	23**	-01	19**	09	27**	25**
GSCH	10**	21**	25**	18**	01*	15**	05**	25**	26**
PAPP	16**	21**	13*	49**	15**	23**	21**	18**	29**
PHYA	16**	13**	11**	26**	53**	27**	15**	27**	26**
SAME	11**	26**	19**	23**	13**	54**	20**	28**	37**
OPPO	17**	19**	17**	30**	15*	23**	49**	11**	28**
PARE	02*	14**	01**	13**	07	23**	00**	65**	23**
GENE	13**	25**	20**	28**	10	31**	21**	31**	51**

Note. N = 485. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Treatment of data

The variables used as criterion were the four coping scales with reliabilities greater than or equal to .60, the other variables (background, depressogenic, actual/own discrepancy and ideal/own discrepancy) were used as predictors.

Based on the model using the four coping variables as criterion and all the other variables as predictors, 48 cases were identified as multivariate outliers at $p<.05$, and were therefore excluded in the following analyses. The largest squared multiple correlations with each predictor variable in turn served as dependent variable and all other predictor variables served as independent variables was .71. Thus, there was no problem of multicollinearity for this predictor data set. The summary statistics for the complete data set are given in Table 11. Note the possible range of the variables for coping is from 0 to 3; depressogenic is from 18 to 126; self-concept discrepancies is from 0 to 8.

Coping variables. The coping variables were 4 of the original 8 scales from the WOC with alpha reliabilities greater than or equal to .60. They were calculated by averaging the ratings of the items belong to each scale. The four scales used were Escape-Avoidance, Seeking social support, Planful problem-solving, and Positive reappraisal.

Background variables. The background variables represented some demographic characteristics of the sample, they were class stream(arts or science), sex, religion (with or without religious belief), and age. Arts class, boys and

students with religious belief were coded as 1; science class, girls and students without religious belief were coded as 0; age was measured as years at last birthday.

Depressogenic variables. They represented two kinds of depressive attributional styles. Negative Depressogenic represented the degree of internality, stability, and globality of attributions for negative events. It was calculated by summing the ratings of internality, stability, and globality for the six negative events in the ASQ. A high score of Negative Depressogenic means a more undesirable attributional style for negative life-events. Positive Depressogenic represented the degree of externality, unstability, and specificity of attributions for positive events. It was calculated by summing the ratings of externality, unstability, and specificity for the six positive events in the ASQ. A high score of Positive Depressogenic means a more undesirable attributional style for positive life-events.

Actual/own discrepancy. It represented the discrepancy of the nine self-concept dimensions between actual self on the own standpoint with actual and ideal selves on the other standpoint. It was obtained by first calculating 46 item discrepancy scores by the following formula:

$$D_i = |A_i - B_i| + |A_i - C_i|$$

in which D_i is the item discrepancy score of the ith item, A_i is the score of the ith item from the actual/own self-state, B_i is the score of the ith item from the actual/other self-state, and C_i is the score of the ith item from the ideal/other self-state. Then, the average of all item discrepancy scores belong to the same self-concept

dimension gave the nine dimension discrepancy scores. A high score for Actual/own Discrepancy means that a student's self-concept of his or her own actual self greatly disagreed with his or her significant other's concept and ideal for him or her. Absolute difference between two self-states was used because self-concept discrepancy was treated as a mismatch between two self-states, the directionality of the difference was not important.

Ideal/own discrepancy. It represented the discrepancy between ideal self on the own standpoint with actual and ideal selves on the other standpoint. It was calculated by the same method as for the actual/own discrepancy, but A_i now became the score of the ith item from the ideal/own self-state. A high score for Ideal/own Discrepancy means that a student's self-concept of his or her own ideal self greatly disagreed with his or her significant other's concept and ideal for him or her.

Table 11

Means and standard deviations for the data set

Variable	Mean	SD
Coping		
1. Escape-Avoidance	1.51	.47
2. Seeking social support	1.91	.51
3. Planful problem-solving	2.06	.44
4. Positive reappraisal	1.91	.47
Background		
5. Class stream	.43	.50
6. Sex	.47	.50
7. Religion	.40	.49
8. Age	15.96	.82
Depressogenic		
9. Positive	61.68	12.12
10. Negative	73.91	12.40
Actual/own Discrepancy		
11. MATH	2.76	1.55
12. VERB	2.94	1.36
13. GSCH	3.00	1.49
14. PAPP	2.36	1.31
15. PHYA	2.26	1.30
16. SAME	1.68	1.10
17. OPPO	1.89	1.25
18. PARE	1.91	1.09
19. GENE	1.93	1.13
Ideal/own Discrepancy		
20. MATH	1.93	0.98
21. VERB	2.12	0.95
22. GSCH	2.03	1.00
23. PAPP	1.76	1.04
24. PHYA	1.85	0.95
25. SAME	1.46	0.82
26. OPPO	1.73	1.09
27. PARE	1.52	0.78
28. GENE	1.59	0.82

Note. N = 438. Arts class = 1, non-arts class = 0. Boys = 1, girls = 0. Has religion = 1, no religion = 0.

Self-concept discrepancy factors. The six self-state representations suggested by Higgins et al. (1985, 1986) can theoretically form 15 different types of self-concept discrepancy (Figure 11). For the four self-state representations studied in the present analysis, there can still be six possible types of self-concept discrepancy. For a more fruitful understanding of self-concept discrepancy, it is necessary to have some underlying constructs to summarize these numerous types of self-concept discrepancy.

An attempt to explore these underlying constructs was done by a factor analysis. The four self-state representations were combined into pairs of two to represent six possible types of self-concept discrepancy. The absolute differences of all 46 self-concept items for each pair were averaged to form six composite measures of self-concept discrepancy without considering the discrepancy of individual self-concept dimensions. The six self-concept discrepancy composite scores were then analyzed with principle factor analysis using oblimin rotation. Oblique instead of orthogonal rotation was used because it was expected that different types of self-concept discrepancy should related to each other. The factor analysis showed that a two-factor solution could be used to represent the original six types of self-concept discrepancy.

The factor loadings for these two self-concept discrepancy factors are shown in Table 12. The first factor represented some cross self-domain discrepancies (between actual and ideal selves on various standpoints), and can be labelled as "Domain Discrepancy". The second factor was formed by "Actual/other vs. Actual/own" and "Ideal/other vs. Ideal/own" discrepancies representing the

own-other discrepancy for the same domain (that is, the own and other standpoints disagreements), and can thus be labelled as "Standpoint Discrepancy".

Table 12
Factor loadings for the two self-concept discrepancy factors

Discrepancy			Factor 1	Factor 2
Ideal/other	vs.	Actual/other	.99	
Ideal/other	vs.	Actual/own	.89	
Ideal/own	vs.	Actual/own	.85	
Actual/other	vs.	Ideal/own	.82	
Ideal/other	vs.	Ideal/own		.93
Actual/other	vs.	Actual/own		.49
		eigenvalue	3.28	1.14
		% variance	54.6	19.0

Note. N = 438. Factor loadings less than .30 were omitted.

Results

Background and the four self-states

As self-concept discrepancy represents the mismatch between different self-state representations, its magnitude is affected by the corresponding magnitudes of the self-states; so ANOVAs were used to explore whether the students had comparable magnitudes for all four self-states with reference to their background. The design was a 2 x 2 x 2 factorial with sex (girl vs. boy), class stream (arts vs. science), and religion (has religion vs. no religion) as between-subjects factors. The scores of all 46 items from a self-state were averaged to form a composite score representing the general magnitude of that self-state. The four composite scores were then in turn served as dependent measure for the ANOVAs. Significant main effects were found for sex on actual/own, class stream on the two ideal self-states, and religion on actual/other.

The means and standard deviations of the four self-states as a function of sex, class stream and religion are summarized in Tables 13. Note that the range for the self-state composite scores is from 1 to 5. The significant main effects showed that boys had higher actual/own self-state, $F(1,430) = 4.45$, $MS_e = 0.23$, $p<.05$; students in science class had higher ideal/own self-state, $F(1,430) = 5.6$, $MS_e = 0.27$, $p<.05$; students who had religious belief had higher actual/other self-state, $F(1,430) = 7.92$, $MS_e = 0.23$, $p<.01$; and students in science class had higher ideal/other self-state, $F(1,430) = 6.08$, $MS_e = 0.31$, $p<.05$.

Table 13
Means and standard deviations for the four self-states as a function of sex, religion and class stream

	Has religion			No religion		
Sex/Class stream	n	M	SD	n	M	SD
Actual/own						
Girl						
Arts	69	2.88	.44	80	2.79	.44
Science	35	2.96	.34	50	2.79	.50
Boy						
Arts	11	2.76	.45	28	2.93	.56
Science	61	3.03	.49	104	2.97	.53
Ideal/own						
Girl						
Arts	69	4.07	.43	80	3.95	.58
Science	35	4.13	.38	50	3.99	.48
Boy						
Arts	11	3.42	.62	28	3.90	.57
Science	61	3.99	.57	104	4.09	.53
Actual/other						
Girl						
Arts	69	2.97	.40	80	2.89	.49
Science	35	3.14	.42	50	2.90	.43
Boy						
Arts	11	2.85	.55	28	3.00	.54
Science	61	3.13	.48	104	2.95	.55
Ideal/other						
Girl						
Arts	69	3.82	.46	80	3.77	.58
Science	35	4.03	.42	50	3.78	.56
Boy						
Arts	11	3.40	.76	28	3.71	.59
Science	61	3.81	.60	104	3.92	.57

Event importance and depressogenic

Both Weiner (1986) and Alloy et al. (1988) included event importance as a significant factor in their models. Peterson et al. (1982) included the event importance ratings in the design of their questionnaire because they expected the effect of depressive attributional style would be greater if the subject regarded the event being attributed as important. However, they failed to

demonstrate that event importance indeed mediate the attribution-depression correlation.

Analyses of variance (ANOVAs) were employed to explore the effect of event importance on coping and depressogenic. When the students were making attributions for the 12 events in the ASQ, they were asked to rate the importance of the events along 7-point Likert scales from "1-very important" to "7-very unimportant". An event with importance rating smaller than or equal to 4 was treated as an important event. The design was a 2 x 2 factorial with Good-importance (Good-Lo vs. Good-Hi) and Bad-importance (Bad-Lo vs. Bad-Hi) as between-subjects factors. Good-Hi represented students who regarded all six good events as important and Good-Lo represented students who did not regard all six good events as important. Bad-Hi represented students who regarded all six bad events as important and Bad-Lo represented students who did not regard all six bad events as important. The four coping variables and the two depressogenic variables were in turn served as dependent measure.

The results of the ANOVAs revealed no significant difference in mean scores of all four coping strategies for different event importance ratings. None of the F ratios obtained were significant at the .05 level. These findings showed that event importance did not have effect on students' coping behavior. However, significant main effects were found for the two depressive attributional styles. The results showed that students regarded all six good events as important were lower in positive depressogenic, $F(1,434) = 4.99$, $MS_e = 146.01$, $p<.05$; and students regarded all six bad events as important were higher in negative depressogenic, $F(1,434) = 9.47$, $MS_e = 150.99$, $p<.005$. As low positive depressogenic and high negative depressogenic means the tendency of making

internal, stable and global attributions. Therefore the importance of an event is positively related to the internality, stability and globality of an attribution. The means and standard deviations of the two depressogenic results are summarized in Table 14.

Table 14
Means and standard deviations for two depressive attributional styles as a function of event importance

	Positive depressogenic		Negative depressogenic	
Condition	Bad-Lo	Bad-Hi	Bad-Lo	Bad-Hi
Good-Lo				
n	102	112	102	112
M	62.39	63.49	71.19	76.25
SD	11.71	12.34	12.79	11.88
Good-Hi				
n	80	144	80	144
M	60.35	60.49	72.51	74.78
SD	11.05	12.68	12.88	12.02

Note. Bad-Lo = not all six bad events were regarded as important;
Bad-Hi =all six bad events were regarded as important;
Good-Lo = not all six good events were regarded as important;
Good-Hi = all six good events were regarded as important.

Canonical correlation analysis with discrepancy dimensions

A canonical correlation analysis with varimax rotation was performed between a set of coping variables and a set of predictor variables including background, depressogenic, actual/own discrepancy and ideal/own discrepancy. This canonical analysis took into consideration the self-concept discrepancy of various dimensions. Tables 15 to 17 gives the correlations among and within the criterion and predictor variables. The canonical results are summarized in Table 18.

Correlations. As shown in Table 15, the largest correlation among the criterion variables was the correlation between Planful problem-Solving and Positive reappraisal (.54, $p<.001$). The result is not surprising because Folkman et al. (1986) reported that these two coping strategies were both related to satisfactory coping

outcomes. So it is reasonable to expect the two coping strategies to be related. The correlations between the predictor and criterion variables showed that the absolute magnitudes of the correlations were generally small, the three important correlations were all due to the correlations with the same criterion variable: Planful Problem-solving. They were the correlations of Planful Problem-solving with Positive Depressogenic (r = -.28, p<.001), the Actual/own General Self-concept discrepancies (r = -.32, p<.001), and the Ideal/own General Self-concept discrepancies (r = -.27, p<.001). Although all the other correlations were quite small, the signs of the correlations showed that, in general, self-concept discrepancy was positively related with Escape-Avoidance and negatively related with other coping strategies. This means that students with higher self-concept discrepancy would tend to use Escape-Avoidance, and students with lower self-concept discrepancy would tend to use the other coping strategies.

Table 16 showed that class stream and sex were significantly related (-.45, p<.001). Because of the ways these two dummy variables were coded, the negative correlation showed that there were more girls than boys in arts classes. The correlation between the two depressogenic attributional styles was only -.09, p<.05. This small correlation implied that Positive Depressogenic and Negative Depressogenic might work in different mechanism, and the negative correlation showed that students who had undesirable attributional style for good events might not necessarily had similar undesirable attributional style for bad events. Generally speaking, other significant correlations showed that sex and actual/own discrepancy were negatively related; negative depressogenic and ideal/own discrepancy were positively related. This means girls had greater actual/own

discrepancy than boys; and students with greater ideal/own discrepancy would also tend to make more internal, stable and global attributions for bad events.

As shown in Table 17, the pattern of correlations among and between the sets of self-concept discrepancy variables was quite similar to that of the correlations among and between the four self-state representations as shown in Tables 4 to 10. The correlations showed that the two discrepancies were more strongly correlated if they came from the same discrepancy dimension. For example, the correlation between Math actual/own discrepancy and Math ideal/own discrepancy was greater than the correlation between Math actual/own discrepancy and Verbal or other ideal/own discrepancies.

Canonical results. As suggested by Thompson (1984), structure coefficients are more stable than canonical coefficient to interpret a canonical Variate-Pair in terms of "the proportion of variance linearly shared by a variable with the variable's canonical composite [canonical Variate-Pair]" (P. 21). Therefore, a cutoff structure coefficient of .30 was used to interpret the canonical results as shown in Table 18.

Table 15
Correlations among criterion variables and their correlations with predictor variables

Variable	Coping 1	2	3	4
Coping				
1. Escape-Avoidance				
2. Seeking social support	02			
3. Planful problem-solving	-03	31**		
4. Positive reappraisal	08	36**	54**	
Background				
5. Class stream	01	12	-01	
6. Sex	-11	-17**	16**	05
7. Religion	-04	09	02	14
8. Age	-11	-07	02	-01
Depressogenic				
9. Positive	01	-15*	-28**	-17**
10. Negative	11	-04	-10	-10
Actual/own Discrepancy				
11. MATH	11	02	-12	-11
12. VERB	03	-11	-20**	-22**
13. GSCH	13*	-05	-23**	-20**
14. PAPP	06	-06	-18**	-11
15. PHYA	03	-13*	-15*	-16**
16. SAME	09	-13*	-15*	-20**
17. OPPO	05	-09	-13*	-07
18. PARE	17**	-07	-17**	-17**
19. GENE	11	-14*	-32**	-26**
Ideal/own Discrepancy				
20. MATH	10	00	-13*	-08
21. VERB	02	-15*	-14*	-21**
22. GSCH	13*	-09	-14*	-12
23. PAPP	07	-16**	-14*	-15*
24. PHYA	-01	-06	-13*	-17**
25. SAME	02	-19**	-11	-19**
26. OPPO	08	-08	-04	-03
27. PARE	08	-14*	-23**	-20**
28. GENE	11	-17**	-27**	-23**

Note. $N = 438$. Decimals and diagonal entries were omitted.
* $p<.005$; ** $p<.001$, two tailed.

Table 16

Correlations among background and depressogenic variables and their correlations with self-concept discrepancy variables

Variable	Background				Depressogenic	
	5	6	7	8	9	10
Background						
5. Class stream						
6. Sex	-45**					
7. Religion	04	-09				
8. Age	02	10	-05			
Depressogenic						
9. Positive	10	-07	-03	-01		
10. Negative	-03	02	00	-09	-09	
Actual/own Discrepancy						
11. MATH	13*	-17**	-08	-05	-05	07
12. VERB	-02	-11	-07	-07	00	12
13. GSCH	01	-17**	00	-09	-03	09
14. PAPP	03	-13*	-08	-06	-01	07
15. PHYA	02	-18**	-04	-06	-01	12
16. SAME	-05	-09	-05	-04	02	11
17. OPPO	-07	09	-10	-02	-03	10
18. PARE	08	-14*	03	-01	04	11
19. GENE	-05	-10	-05	-02	08	13*
Ideal/own Discrepancy						
20. MATH	12	-13*	-03	-07	-01	11
21. VERB	-03	-02	-12	-02	04	12
22. GSCH	-03	-02	-05	-04	04	12
23. PAPP	01	-05	-08	01	-05	14*
24. PHYA	02	-09	-06	-03	02	06
25. SAME	-02	-06	-08	-02	05	13*
26. OPPO	-08	08	-06	-04	-15*	11
27. PARE	09	-10	00	-04	04	15*
28. GENE	-05	-05	-08	-04	06	07

Note. N = 438. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Table 17

Correlations among and between the two sets of self-concept discrepancy

	Actual/own Discrepancy									*Ideal/own Discrepancy*							
Variable	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Actual/own Discrepancy																	
11. MATH																	
12. VERB	46																
13. GSCH	61	64															
14. PAPP	50	52	53														
15. PHYA	52	48	58	50													
16. SAME	43	50	46	45	53												
17. OPPO	36	48	42	48	42	49											
18. PARE	35	38	49	35	42	43	32										
19. GENE	49	56	64	52	52	58	57	47									
Ideal/own Discrepancy																	
20. MATH	64	31	46	35	38	29	32	28	36								
21. VERB	23	48	37	30	28	31	35	24	37	51							
22. GSCH	36	37	57	34	35	26	31	30	42	63	61						
23. PAPP	30	29	30	57	34	32	37	20	41	45	52	42					
24. PHYA	30	30	38	34	61	31	32	26	36	48	47	46	42				
25. SAME	29	31	34	27	31	57	34	29	40	41	46	38	43	41			
26. OPPO	26	39	39	37	32	36	65	29	45	39	43	41	47	42	49		
27. PARE	27	23	30	21	28	27	28	59	34	44	44	45	36	38	45	37	
28. GENE	31	37	42	35	36	39	44	39	65	50	53	58	48	50	52	54	49

Note. N = 438. Decimals and diagonal entries were omitted.
All correlations were significant at $p < .001$, two tailed.

Table 18

Canonical correlation analysis with coping as criteria; background, depressogenic, and self-concept discrepancies as predictors (3 canonical relations with p<.05; 24 predictors, 4 criteria).

Variable	SC_1	SC_2	SC_3	r_1	r_2	r_3	h^2
			Predictor variate				
Background							
1. Class stream	-0.06	0.05	-0.19	-0.17	0.34	-0.21	0.19
2. Sex	0.17	-0.60	-0.06	0.33	-0.56	0.04	0.42
3. Religion	0.14	0.11	-0.42	0.14	0.23	-0.38	0.21
4. Age	0.00	-0.19	-0.25	0.08	-0.27	-0.21	0.12
Depressogenic							
5. Positive	-0.45	-0.11	-0.22	-0.51	-0.14	-0.28	0.36
6. Negative	-0.25	0.12	0.18	-0.26	0.03	0.27	0.14
Actual/own discrepancy							
7. MATH	0.11	0.17	0.43	-0.31	0.17	0.23	0.18
8. VERB	-0.08	-0.27	-0.20	-0.44	-0.16	0.07	0.22
9. GSCH	-0.44	0.11	0.01	-0.53	0.08	0.23	0.34
10. PAPP	0.00	0.16	-0.52	-0.36	0.03	-0.03	0.13
11. PHYA	0.17	-0.64	-0.16	-0.33	-0.20	0.10	0.16
12. SAME	-0.09	0.11	0.35	-0.38	-0.18	0.30	0.27
13. OPPO	0.07	0.10	-0.34	-0.25	-0.08	-0.03	0.07
14. PARE	0.12	0.16	0.75	-0.44	0.04	0.41	0.36
15. GENE	-0.33	0.09	-0.18	-0.68	-0.07	0.10	0.47
Ideal/own discrepancy							
16. MATH	0.02	0.28	-0.31	-0.29	0.15	0.12	0.12
17. VERB	0.03	-0.22	0.07	-0.34	-0.30	0.18	0.24
18. GSCH	0.24	0.12	0.41	-0.34	-0.03	0.28	0.19
19. PAPP	-0.08	-0.27	0.39	-0.32	-0.25	0.19	0.20
20. PHYA	-0.04	0.25	-0.07	-0.29	-0.12	0.03	0.10
21. SAME	0.20	-0.51	-0.02	-0.28	-0.40	0.23	0.29
22. OPPO	0.23	0.23	0.25	-0.12	-0.08	0.20	0.06
23. PARE	-0.36	-0.18	-0.46	-0.49	-0.14	0.10	0.27
24. GENE	-0.38	-0.09	-0.07	-0.58	-0.16	0.14	0.38
Variance extracted	13.86% +	4.70% +	4.41% = 22.97%				
Redundancy	3.71% +	0.85% +	0.43% = 4.99%				
			Criterion variate				
Coping							
1. Escape-Avoidance	-0.27	0.34	0.81	-0.26	0.40	0.73	0.76
2. Seeking social support	-0.05	0.87	-0.06	0.30	0.86	-0.04	0.83
3. Planful Problem-solving	0.75	-0.42	0.76	0.93	0.01	0.36	0.99
4. Positive reappraisal	0.35	0.30	-0.66	0.72	0.41	-0.20	0.73
Variance extracted	38.40% +	26.50% +	17.64% = 82.53%				
Redundancy	10.27% +	4.81% +	1.71% = 16.79%				

Canonical correlation

Variate-Pair 1	0.52
Variate-Pair 2	0.43
Variate-Pair 3	0.31

Note. N = 438. SC_i = standardized canonical coefficient for Variate-Pair i; r_i = structure coefficient for Variate-Pair i; h^2 = communality coefficient.

Three pairs of canonical variates were extracted at $p<.05$. The canonical correlations were .52 (27.04% of variance), .43 (18.49% of variance) and .31 (9.61% of variance). All three variates had correlations greater than .3. That is, they all accounted for over 9% variance between the predictor and criterion variates, and so they were all interpreted. The three significant canonical correlations showed that the three sets of canonical variate scores shared a total of 55.14% of their variance with each other, that is, the optimally weighted variables shared 55.14% of their variance.

Besides the canonical correlations, the redundancy measure of the canonical analysis is a very important index to reflect the predictor and criterion relational structure. The criterion redundancies showed the extent of the set of criterion variables that can be explained by the predictor variables. Together, the 24 predictor variables accounted for 16.79% of the total variance of the criterion variables.

Both the canonical coefficients and the structure coefficients (correlations between individual variables and the Variates) showed that the first canonical Variate-Pair loaded primarily on the two coping strategies of Planful Problem-solving and Positive Reappraisal; the second canonical Variate-Pair mainly described Seeking Social Support, the last and the least important Variate-Pair was for Escape-Avoidance.

Taken as a pair, the first variates showed that boys, students with low positive depressogenic and small self-concept discrepancy for most dimensions tended to use more planful problem-solving and positive reappraisal.

The second variates were mainly a bivariate correlation between sex and seeking social support. As

there were more girls in the arts class, this Variate-Pair was also characterized by students from the arts class. Self-concept discrepancy dimensions which had significant contributions to this Variate-Pair were ideal/own Peers Relations (Same Sex) and ideal/own Verbal discrepancies. They showed that students with low Peers Relations (Same Sex) discrepancy and low Verbal discrepancy tended to seek more social support when they faced problems.

The last variates described which factors made students escape when they faced problems. Contrary to the belief of some people, religion was not a way to escape for the students in this sample. As the most important background variable that defined this Variate-Pair, religion was found to be negatively related to the use of Escape-Avoidance. Because students with religious belief were coded as 1 and students without religious belief were coded as 0; so the negative structure coefficient showed that students without religious belief would tend to use Escape-Avoidance than those with religious belief. What added more to this Variate-Pair were the Peers relations (Same sex) and Parents relations of the actual/own discrepancy.

For the last Variate-Pair, the most significant contribution from self-concept discrepancy was actual/own Parents Relations discrepancy. It showed that if students perceived their actual/own self-concept of Parents Relations greatly disagreed with that of their significant other's (it was very possible that the significant others were their own parents) would tend to escape when they faced problems. On the whole, nearly all the structure coefficients of self-concept discrepancy were positive. They showed that Escape-Avoidance was characterized by great self-concept discrepancy.

The communality coefficients (the pooled squared structure coefficients) showed the contribution of an individual variable to the explanatory power of the set of variables to which it belongs. Table 18 gives that among the four sets of predictor variables, sex, Positive Depressogenic, Academic, Parents Relations and General Self-concept discrepancies were the most significant predictor variables to explain the set of criterion variables.

Partitioning of Redundancy. In order to assess the unique and confounded contributions of each set of predictor variables to the explanation of the criterion variables, the commonality method of partitioning criterion variance as suggested by Cooley and Lohnes (1976, p. 222) was used. The criterion variance to be partitioned was the total criterion redundancy for all canonical variates significant at $p<.05$. Total criterion redundancies were computed for 15 models with different combinations of the sets of predictor variables (Table 19); unique and confounded components of the four predictor sets were computed according to the formulae given by Cooley and Lohnes. The results are given in Table 20.

After decomposition, it can be seen that Actual/own Discrepancy made the most important unique contribution to the total redundancy (4.64% out of 16.79%). The second most important unique contribution came from the Ideal/own Discrepancy (3.75%). On the whole, the unique contributions from the two sets of self-concept discrepancy made up over half of the total redundancy of the complete model with four sets of predictor variables. This illustrated that self-concept discrepancy was quite significant if coping behavior was to be explained. The third most important unique contribution was depressogenic (2.41%). The least unique contribution came from the set

of background variables; though it was only 2.26%, it was much larger than any confounded component.

Most of the confounded contributions were very small, some of them were even negative. The greatest confounded contributions came from the two-domain confounded component of depressogenic with Ideal/own Discrepancy; and the two self-concept discrepancies. This again demonstrated the importance of the two sets of self-concept discrepancy variables because they not only affected coping individually by their unique contributions, but also affected coping by combining with other predictors and by their own confounded contribution.

Table 19
Total Redundancies for 15 models of canonical correlation analyses

Model	Predictor	Total Redundancy (%)
1.	BG	2.65
2.	AS	4.12
3.	AD	7.14
4.	ID	7.70
5.	BG+AS	7.05
6.	BG+AD	8.99
7.	BG+ID	9.47
8.	AS+AD	10.10
9.	AS+ID	10.43
10.	AD+ID	12.04
11.	BG+AS+ID	12.15
12.	BG+AS+AD	13.04
13.	BG+AD+ID	14.38
14.	AS+AD+ID	14.53
15.	BG+AS+AD+ID	16.79

Note. N = 438. BG = background, AS = Depressogenic, AD = Actual/own discrepancy, and ID = Ideal/own discrepancy.

Table 20.
Four-domain commonality partitions of canonical redundancies (24 predictor variables, 4 criterion variables)

Background (4 variables) %	Depressogenic (2 variables) %	Actual/own Discrepancy (9 variables) %	Ideal/own Discrepancy (9 variables) %	Redundancy Components %
Unique components				
2.26				2.26
	2.41			2.41
		4.64		4.64
			3.75	3.75
Two-domain confounded components				
0.08	0.08			0.08
-0.54		-0.54		-0.54
0.68			0.68	0.68
	0.27	0.27		0.27
	1.64		1.64	1.64
		1.35	1.35	1.35
Three-domain confounded components				
-1.17	-1.17		-1.17	-1.17
-0.03	-0.03	-0.03		-0.03
0.53		0.53	0.53	0.53
	0.08	0.08	0.08	0.08
Four-domain confounded components				
0.84	0.84	0.84	0.84	0.84
Check Σ				
2.65	4.12	7.14	7.70	16.79

Note. N = 438. Pooled redundancies of canonical Variate Pairs significant at $p<.05$ were used in the partitioning.

Canonical correlation analysis with discrepancy factor

The previous canonical correlation analysis is significant for it can illustrate the different contribution of an individual dimension of self-concept discrepancy to the prediction of coping behavior. However, as two distinct discrepancy factors were found to represent the six possible discrepancies for the four self-states (Table 12), a separate canonical correlation analysis was performed to explore the effect of self-concept discrepancy and attributional style on coping from a different point of view. This analysis used the coping variables as criteria and the two self-concept discrepancy factor scores, the background and depressogenic variables as predictors, the correlations between and among the criterion and predictor

variables are given in Table 21 and the canonical results are summarized in Table 22.

Table 21.
Correlations between criterion and predictor variables

Variable	Criterion				Background				Dep		Dis
	1	2	3	4	5	6	7	8	9	10	11
Criterion											
1. Escape-Avoidance											
2. Seeking social support	02										
3. Planful problem-solving	-03	31**									
4. Positive reappraisal	08	36**	54**								
Background											
5. Class stream	01	12	-10	-01							
6. Sex	-11	-17**	16**	05	-45**						
7. Religion	-04	09	02	14*	04	-09					
8. Age	-11	-07	02	-01	02	10	-05				
Depressogenic (Dep)											
9. Positive	01	-15*	-28**	-17**	10	-07	-03	-01			
10. Negative	11	-04	-10	-10	-03	02	00	-09	-0 9		
Discrepancy (Dis)											
11. Domain	13*	-10	-21**	-20**	00	-12	-09	-08	-01	12	
12. Standpoint	07	-17**	-20**	-19**	04	-07	-01	00	07	15*	23**

Note. N = 438. Decimals and diagonal entries were omitted.
* p<.005; ** p<.001, two tailed.

Correlations. As shown in Table 21, both Domain and Standpoint Discrepancies were negatively related to planful problem-solving and positive reappraisal. This showed that students exhibited either type of self-concept discrepancy tended to use less planful problem-solving and positive reappraisal when they coped with failure. On the other hand, the two discrepancies showed different relationship with the remaining two coping strategies. Escape-Avoidance was positively related to Domain Discrepancy (r = .13, p <.005) and Seeking social support was negatively related to Standpoint Discrepancy (r = -.17, p <.001). For the two attributional styles, only a small correlation was found between Standpoint Discrepancy and Negative Depressogenic. Finally, as the two discrepancy factors were identified

with oblique rotation, they were related significantly (r = .23, p<.001).

Table 22

Canonical correlation analysis with coping as criteria; ackground, depressogenic, and self-concept discrepancy factors s predictors (2 canonical relations with p<.05; 8 predictors, 4 criteria).

Variable	SC_1	SC_2	r_1	r_2	h^2
			Predictor variate		
Background					
1. Class stream	.01	.23	-.16	.53	0.31
2. Sex	.25	-.73	.34	-.83	0.80
3. Religion	.15	.21	.19	.31	0.13
4. Age	.01	-.26	.09	-.35	0.13
Depressogenic					
5. Positive	-.58	-.17	-.59	-.13	0.37
6. Negative	-.28	.08	-.32	.04	0.10
Discrepancy factor					
7. Domain	-.45	-.03	-.60	-.01	0.36
8. Standpoint	-.33	-.33	-.54	-.28	0.37
Variance extracted	16.19% + 16.10% = 32.29%				
Redundancy	3.14% + 1.50% = 4.64%				
			Criterion variate		
Coping variables					
1. Escape-Avoidance	-.36	.22	-.35	.27	0.20
2. Seeking social support	.05	.96	.39	.88	0.93
3. Planful problem-solving	.67	-.48	.89	-.09	0.80
4. Positive reappraisal	.37	.18	.72	.28	0.60
Variance extracted	39.43% + 23.51% = 62.94%				
Redundancy	7.64% + 2.19% = 9.84%				
Canonical correlation					
Variate-Pair 1	0.44				
Variate-Pair 2	0.31				

Note. N = 438. SC_i = standardized canonical coefficient for Variate-Pair i; r_i = structure coefficient for Variate-Pair i; h^2 = communality coefficient.

Canonical results. Two pairs of canonical variates were extracted at p<.05 (Table 22). The canonical correlations were .44 (19.36% of variance), .31 (9.61% of variance). The two significant canonical correlations showed that the two sets of canonical variate scores shared a total of 28.97% of their variance with each other. The criterion redundancies showed that the predictor variables accounted for 9.83% of the total variance of the criterion variables.

The first canonical Variate-Pair loaded primarily on the two coping strategies of Planful Problem-solving and Positive Reappraisal; the second canonical Variate-Pair mainly described Seeking Social Support. Taken as a pair, the first variates showed that students with small self-concept discrepancy and low depressogenic tended to use more Planful problem-solving and Positive reappraisal. The second variates showed that students in arts class, girls, students with religious belief, and younger students would seek more social support in their coping. Finally, the communality coefficients showed that among the eight predictors, sex, Positive depressogenic and the two self-concept discrepancy factors were the most important variables to explain the four coping variables.

Partitioning of Redundancy. The commonality method of partitioning criterion variance was used again to assess the unique and confounded contributions of each set of predictor variables to the explanation of the criterion variables. The criterion variance to be partitioned was the total criterion redundancy for all canonical variates significant at $p<.05$. Unique and confounded components of the three predictor sets were computed according to the formulae given by Cooley and Lohnes (1976). The results are given in Table 23.

As shown by the decomposition of redundancies (Table 23), the most important unique contribution was made by attributional style, the second important contribution came from self-concept discrepancy, and background was still contributed the least. For the confounded contributions, the only important one is from the attributional style and self-concept discrepancy.

Table 23.
Three-domain commonality partitions of canonical redundancies (8 predictor variables, 4 criterion variables)

Background (4 variables) %	Depressogenic (2 variables) %	Self-concept discrepancy (2 variables) %	Redundancy components %
Unique components			
2.24			2.24
	3.20		3.20
		2.79	2.79
Two-domain confounded components			
0.00	0.00		0.00
0.69		0.69	0.69
	1.20	1.20	1.20
Three-domain confounded components			
-0.28	-0.28	-0.28	-0.28
Check Σ			
2.65	4.12	4.40	9.84

Note. N = 438. Pooled redundancies of canonical Variate airs significant at $p<.05$ were used in the partitioning.

Discussion

A new taxonomy for coping

Being a methodology of external factor analysis, the canonical correlation analysis can describe the structure of a set of variables with reference to another set of variables that is not in the original set. The canonical results of the present study described the four coping strategies as belong to three styles. The first style was characterized by Planful problem-solving and Positive reappraisal, the second style was Seeking social support, and the last one is Escape-Avoidance.

Most existing typologies for coping behavior based their classifications mainly on the objective of coping. Folkman and Lazarus (1980) proposed problem-focused and emotion-focused as the two basic types of coping behavior. The former aims at coping with external stress and the latter aims at coping with internal distress. Weisz and his colleagues (Band & Weisz, 1988; Weisz et al., 1984) also distinguished two kinds of control behavior. Primary control aims at changing the reality whereas as secondary control aims at accommodating the reality. Both typologies answer the question of what is being coped with; that is, the objective of coping. However, coping objective cannot differentiate the three styles found in the present study. The first and second Variate-Pair had both objectives of coping with the external and internal states. Therefore, the three styles of coping behavior would be interpreted with a new dimension. They would be differentiated by

their underlying differences in the mobilization of coping resources.

The first style described the situation where the mobilization of coping resources were mainly from within the copers. People characterized by this style would try to mobilize internal personal resources as shown by the strategy of planful problem-solving (such as past experience, careful planning and concentration) and they also manifested a kind of self-efficacy or self-confidence (e.g., "I know what had to be done...", "Drew on my past experience..."). Coping strategies of Positive reappraisal do not show explicitly the sense of self-efficacy or self-confidence (e.g., "I came out of the experience better than when I went in.", "Found new faith", "I prayed). However, positive reappraisal should be interpreted as a shift of the sense of control rather than a relinquished control (Weisz & Cameron, 1985). Arkin and Baumgardner (1986) also argued that the cognitive reinterpretation of Positive reappraisal actually reflects the perception of the potential for effective coping in the future.

The present study showed that students with desirable attributional style (low depressogenic) and high concordance among various self-states (small self-concept discrepancy) tended to be copers of this kind. This is consistent with the interpretation of the first coping style as the mobilization of internal personal resources, because it is reasonable to believe that students with desirable attributional style and small self-concept discrepancy would have better perceptions of self-efficacy and self-confidence. Therefore, they were more likely to mobilize internal personal resources to cope with stress.

The second style described the external mobilization of coping resources. Copers of this style would try to talk to someone about the problem or try to ask for help.

The fact that this style mainly described girls and younger students implied the mobilization of external coping resources was mainly due to the absence or inadequacy of internal coping resources. Besides girls and young students, the present study also found that better verbal ability and peers relations of the same sex would lead students seek more social support. Thus, the mobilization of external coping resources will mostly happen when there are absence or inadequacy of internal resources as well as capacity and likeliness to mobilize external resources.

The last style described the most undesirable situations. It represented the deficiency of internal personal coping resources as well as the unwillingness or inability to mobilize external resources. Copers characterized by this style would just refuse to believe the reality or avoid being with people. The present study pointed out that lower self-concept discrepancy and smaller depressive attributional style for negative events would prevent students from escaping.

The three significant canonical Variate-Pair found in the present study revealed a new dimension for coping taxonomy. The way of classifying coping behavior proposed here can answer the question of who will be coping with the stress. In sum, the first type described the mobilization of internal coping resources, the second type described the mobilization of external coping resources, and the last type described the absence of both resources.

Background and coping

Age. It is reasonable to expect that people of different ages will be characterized by different arrays of coping strategies. For example, it was reported that coping behavior aimed at influencing external environment

was negatively related to age whereas coping behavior aimed at accommodating the external environment by improving one's goodness of fit was positively related to age (Band & Weisz, 1988). In fact, the second canonical variates (Tables 18, 22.) showed that younger students sought more social support. Younger students might perceive themselves as weaker and inexperienced, so they lacked internal coping resources that could be mobilized. On the other hand, people are generally more willing to offer help for younger people. Due to the inadequacy of internal coping resources and the ease of mobilizing external resources, younger students tended to seek social support when they were in need.

However, as revealed by the communality coefficients, age seemed to be a very weak predictor of how students would cope with failure, it was indeed the weakest background variable to predict coping. This result may be due to the fact that students in this sample were all 10th graders, the age range in this sample was quite small (from 15 to 18), that is, the sample was quite homogeneous with regard to age. The effect of age may show more significant effect on coping if students with larger age range are studied.

Furthermore, the poor reliabilities for some WOC scales found in this study also revealed that younger students may not be able to differentiate different kinds of coping strategies so well as that of adults or college students. Although, Folkman et al. (1980, 1985, 1986) reported that the WOC items can be represented by six to nine factors with satisfactory reliabilities, some of the scales were not reliable enough to be used in the present study. As coping strategies are something that have to be learnt through actual trial and error, the lack of life experience explained why coping strategies of young people are more diffused rather than specific.

Class. In Hong Kong, starting from the 10th grade, students will divert their studies in different class streams. The science class will take subjects like Physics, Chemistry, Biology and Additional Mathematics (more abstract and difficult than the Mathematics taken by the arts streams). The arts streams will take subjects such as History, Geography, Literature and Economics. Subjects taken may have effect on students' attitudes towards the world and themselves. Table 16 revealed that students from arts classes had greater self-concept discrepancy for their Maths abilities and Table 13 showed that students in science classes had higher ideal self-concepts. Therefore, it was expected that class stream differences might have effect on their attributional styles as well as self-concepts.

It was expected that the students from the arts classes, due to their subjects taken and their ways of thinking, would tend to explain things with greater interpersonal or social emphasis. Thus, in case of facing problems and difficulties, they would tend to resort to seeking help from social source. The second canonical variates as shown in Table 18 supported this expectation. However, it was by no means sufficient to infer that class stream difference really has effect on students' coping behavior, because as shown in Table 16, class stream was significantly correlated with sex ($r = -.45$, $p<.001$); so the real underlying effect may be due to sex differences rather than class stream differences.

Religion. Being the second most important background variable, religion was significant for its position in the third canonical Variate-Pair (Table 18). Religion was negatively related with Escape-Avoidance. It implied some positive effects of religious belief on students.

Religious belief to students was not a way to escape but was something that gave them impetus to face problem positively. As religion can be considered as the last resort for people facing crisis, so with the availability of this last resort, it was not so necessary for students with religious belief to escape when they faced negative life-events.

In addition, as revealed in Table 13, students with religious belief had significantly better actual/other self-state. That is, they would think of a better self-concept from their significant others; they might also have greater confidence in interpersonal relationship and the likeliness to mobilize external coping resources. The second Variate-Pair showed, though not very significant, students with religious belief tended to seek more social support than students without religious belief.

Sex. As shown in Table 18, sex was the most important background variable which had a communality coefficient of 0.42. The second canonical variates also showed that girls sought more social support when they faced difficulties. This may be due to the different sex role stereotype for boys and girls. Boys are expected to be more independent and stronger, so they are more hesitated to seek help when they have problems. On the other hand, stereotyped as the weaker sex, girls are not socially nor psychologically prevented from seeking help when in need.

This sex difference in coping may be due to the fact that there is sex difference in people's attributional style. Ickes and Layden (1978) found that desirable attributional style (making internal, stable, and global attributions for success and external, unstable, and specific attributions for failure) characterized men more than women. Moreover, Whitley and Sweeney (1981) also discovered the correlation of masculinity component of sex-

role self-concept with desirable attributional style, and suggested that the relationship between biological sex and attributional style may be mediated by the sex-role self-concept.

However, as shown by the correlations of sex with the two depressive attributional styles in Table 16, it is not possible to infer the same relationship between sex and depressogenic. Nevertheless, it is worth noting that, as shown by the signs of the correlations, girls tended to have greater self-concept discrepancy (especially the actual/own discrepancy). The reason for this greater actual/own discrepancy might be due to the fact that girls had significantly lower actual/own self-state (Table 13). The lower actual/own self-state may be the result of the just mentioned weaker sex-role stereotype for girls, but future studies are needed to confirm this hypothesis.

Attributional Style and coping

Positive vs. Negative Depressogenic. As an important aspect of the stress process, coping is basically regarded as strategies to handle negative life-events; therefore, it is natural to expect Negative Depressogenic (depressive attributional style for negative events) is more relevant in the prediction of coping behavior (e.g., Janoff-Bulman, 1979). Sweeney's (Sweeney , Anderson, & Bailey, 1986) meta-analytic review of over 100 studies also pointed out that the relationship of depression with Negative depressogenic was stronger that with Positive depressogenic.

However, according to the results shown in Table 18, Positive Depressogenic seemed to be more important. The communality coefficient of Positive Depressogenic (0.36) was more than double that of Negative Depressogenic (0.14).

This contradictory result can give some new insights to the interpretation of coping.

Coping is of course a way to handle negative life-events, but the underlying objective of coping should be the turning of negative life-events into positive, or the overcoming of difficulties to attain success. Therefore, how people look at success or positive life-events is also important for choosing different kinds of coping strategies. The correlations in Table 16 showed some essential differences between the two depressogenics. It was Negative depressogenic rather than Positive depressogenic that was correlated significantly with self-concept discrepancy. The positive correlations showed that students high in Negative depressogenic also tended to have great self-concept discrepancy. If great self-concept discrepancy can really reflect low self-esteem, then it can be argued that self-esteem is characterized by Negative rather than Positive depressogenic.

On the other hand, as shown by the first canonical Variate-Pair in Table 18, Positive depressogenic was more important than Negative depressogenic to define Planful problem-solving and Positive reappraisal. As these two coping strategies were interpreted as the mobilization of internal personal coping resources, they indicated some sorts of personal confidence to cope with the stress. Therefore, it is concluded that Positive depressogenic can reflect self-efficacy and Negative depressogenic can reflect self-esteem.

However, the two depressive attributional styles sometimes worked together and sometimes worked differently. As the first canonical Variate-Pair (Table 18) revealed, students low in both depressive attributional styles tended to use more Planful Problem-solving and Positive Reappraisal; that is, they worked together. However, the

third canonical Variate-Pair showed that students with high Negative Depressogenic but low Positive Depressogenic tended to escape; so they worked differently.

The situation in the first canonical Variate-Pair can be understood more readily, because both depressogenics were depressive attributional styles, therefore, they should have similar effect on coping. The third Variate-Pair is more difficult to explain for it showed that Escape-Avoidance was characterized by high Negative depressogenic but low Positive depressogenic. This seemingly contradictory effects of depressogenics can be understood by breaking down these two composite attributional style measures into their respective causal dimensions.

Low Positive depressogenic means that causal attributions made for good events are mainly internal, stable and global. On the other hand, high Negative depressogenic means that causal attributions made for bad events are also internal, stable and global. In other words, both low Positive depressogenic and high Negative depressogenic underscore the internality, stability and globality dimensions of causal attribution. With this understanding of the similarity between low Positive depressogenic and high Negative depressogenic, it can be concluded that Escape-Avoidance was characterized by internal, stable and global attributions regardless of whether the events being attributed were positive or negative.

Event importance. Although it was found that event importance for attribution had no direct effect on the four coping strategies, event importance might exert its influence on coping through its effect on the two depressogenics. Table 14 showed that students regarded good events as important would tend to attribute success

with more internal, stable and global causes whereas students regarded bad events as important would tend to attribute failure with more internal, stable and global causes. This means that event importance had a tendency to increase the internality, stability and globality of attribution for both good and bad events. As a result, the more important the event was regarded, the lower the Positive depressogenic and the higher the negative depressogenic would be.

The first implication of event important is that, as Escape-Avoidance was found to be characterized by the internality, stability and globality of attribution regardless of whether the event was bad or good, it can be inferred that the more important the event was regarded by the students the more likely the students would use Escape-Avoidance.

Another implication of event importance is for the development of attributional style measurements. The ASQ developed by Peterson et al. (1982) is superior to some other previous measurements because they did not limit the choices of attribution; subjects are free to give whatever reasons they can think of. However, they still limit the choices of events to be attributed. As the importance ratings for the events to be attributed are significant, a more sensitive attributional style measurement, instead of giving some predetermined events for subjects to attribute, should ask the subject to give spontaneously some events that they think are important and then ask them to make attributions for their own events.

Moreover, the effect of event importance also implies that when students treat negative life-events too seriously, they are prone to have a greater negative depressogenic. Students will tend to consider some negative life-events as important if they cannot realize

the availability of other alternatives. So when teachers try to help students whose coping behavior is deteriorated by undesirable attributional style (especially negative depressogenic), they should try to let the students know what other alternatives are available and prevent them from overestimating the importance of negative life-events so easily.

Self-concept Discrepancy and Coping

As shown by the first canonical variates in Table 18, the signs for the structure coefficients of all self-concept discrepancy variables were negative. It is reasonable to conclude that more frequent use of Planful Problem-solving and Positive Reappraisal was characterized by small self-concept discrepancy. As Folkman et al. (1986) reported that satisfactory coping outcomes "were characterized by higher levels of planful problem-solving ($p<.01$) and positive reappraisal ($p<.01$)" (p. 997), it can be inferred that satisfactory coping outcomes is characterized by small self-concept discrepancy. That is, when students' different self-states agree with one another, it is more likely that coping behavior would lead to satisfactory coping outcomes.

On the other hand, the Peers Relations discrepancies defining the second canonical variates illustrated the different functions of same sex peers and opposite sex peers. The more important Same Sex Peers discrepancy and the less important Opposite Sex Peers discrepancy revealed that students' perception about their relations with same sex peers was more important than that with opposite sex peers in their decision to seek social support. It might have an implication that the source of social support for the students came mainly from peers of the same sex.

Another important discrepancy dimension for Seeking social support was Verbal discrepancy. Verbal (labelled as Reading in Marsh's SDQ and SDQII; Marsh et al., 1983, 1985) was classified as a dimension below the academic self-concept hierarchy. As revealed by the second canonical variate, students with lower Verbal discrepancy would tend to seek more social support; but the other two academic dimensions (Math and Academic) did not show the same pattern. Therefore, it is suggested that Verbal discrepancy means something more than just academic. As interpersonal interaction is mainly conducted through verbal communication, students with small Verbal discrepancy might view themselves as having the ability to communicate well with people and enhance their confidence in interpersonal communication, so they tended to seek social support when they faced problems.

Self-concept discrepancy factors. As shown in Table 22, the total redundancy resulted from the canonical correlation analysis replacing actual/own and ideal/own discrepancies with the two self-concept discrepancy factor scores as predictors was only 9.84%. It was smaller the total redundancy found for the original model (16.79%, Table 13). However, this sacrifice of some predicting power had greatly simplified the predictor variables set of the original model, because the original model utilized 24 predictors whereas the new model utilized only 8 predictors.

The reason for the smaller predicting power may be due to the reason that there were only six variables in the self-concept discrepancy factor analysis, and the Standpoint Discrepancy was defined by just two variables, so the factors found may not be very consistent. If the ought self domain was included, the factor analysis of all 15 possible self-concept discrepancies may give better results.

However, the results shown in Table 22 still give some insights to the understanding of self-concept discrepancy and coping. As the first Variate-Pair showed, Standpoint discrepancy was less important than Domain discrepancy to describe the use of Planful Problem-solving and Positive Reappraisal. It can be interpreted that self-concept discrepancy between different domains will be more important because it is really a discrepancy. That means it can represent the students' evaluation of their own self-efficacy. So Domain discrepancy can reflect students' self-efficacy and affect their choice of Planful problem-solving and Positive reappraisal.

On the other hand, Standpoint discrepancy, which means the discrepancy between the own standpoint and the other standpoint, may just represent the situation of not being understood or not being accepted by others. As illustrated by the second Variate-Pair, standpoint discrepancy significantly influenced whether the students would seek social support when they faced difficulties. The structure coefficients of this second Variate-Pair showed that the higher the standpoint discrepancy perceived by the students, the lesser would be the chance that they would seek social support.

General Self-concept and Academic Self-concept. Referring to the nine dimension discrepancies of the two sets of self-concept discrepancy variables, it can be seen that Academic and General Self-concept were the most important both in their relationship with other dimensions and with the criterion variables. The importance of General self-concept can readily be understood because it is "general", so it should reflect the general state of self-concept discrepancy.

However, if bear in mind that the subjects studied in the present research were all students, then Academic self-concept can be understood in a similar manner as General self-concept. It is reasonable to believe that the most relevant and significant self-concept dimension to a person is the dimension related to his or her most important role and expectation. As the role of a student was one of the most significant role for the subjects; so Academic self-concept was as relevant as General self-concept to reflect the general state of self-concept of the students. Therefore, in future studies of self-concept or self-concept discrepancy, taking into consideration of the most relevant role or aspiration of the subjects, may help to find out the most important relationship.

Conclusion

As all the 438 subjects in the present study were 10th-grade students, the conclusions drawn in this study can only be generalized to similar samples. Due to the age homogeneity of this sample, the effect and implication of age or maturity to coping behavior is especially not very clear, so further investigations based on findings of the present study with developmental or longitudinal designs should be done in order to find out the effect of age or maturity on coping behavior.

Coping in this study was mainly explained by the two cognitive constructs (attributional style and self-concept discrepancy), but coping is indeed too complicated to be exhausted by just two constructs. It depends not only on attributional style and self-concept discrepancy, but also on other factors such as the availability of supporting resources, past experiences and many other situational factors. Therefore, the predictors in this study can only predict a limited portion of coping behavior. A more ambitious attempt should take into consideration the various appropriate situational and dispositional factors that may influence coping.

The present study has successfully demonstrated the importance of self-concept discrepancy. It was found that, besides the traditional use of self-concept discrepancy as an indicator for self-esteem or life-satisfaction, it can also be used to explore people's behavior. Thus, it is recommended that self-concept discrepancy should be used in other researches to explore its influence on other phenomena. Many previous studies have used self-concept to explain various phenomena such as depression, emotion,

motivation, and achievement. It is reasonable to expect, as a broader variation of self-concept, self-concept discrepancy may be as efficient as self-concept as a predictor, or even more efficient in some cases. However, in order to simplify the present study, only 4 of the 6 possible self-state representations and 4 of the 15 self-concept discrepancies were analyzed. Therefore, further studies intended to have a more complete analysis of self-concept discrepancy should take into consideration more aspects of self-concept.

Originally, it was expected that depressive attributional style and self-concept discrepancy influenced coping style both independently and jointly. However, as shown by the decomposition of the unique and confounded redundancy components of these two constructs, they seemed to work on coping style mainly by their independent influence; their confounded influence was not very significant. However, it is not necessary nor sufficient to jump to the conclusion that the two constructs are not related to each other with respect to coping behavior.

The present study have not evaluated the effectiveness or efficacy of specific coping behavior, but due to relationships found among depression (an unsatisfactory outcome of coping), depressive attributional style and self-concept discrepancy, it is reasonable to suggest that planful problem-solving and positive reappraisal are more desirable than escape-avoidance. So it is suggested that teachers should try every effort to demonstrate and encourage directly the use of the two desirable coping strategies.

As mentioned before, the coping style characterized by the two desirable coping strategies represents the internal mobilization of personal resources to cope with stress, it implies a sense of personal ability. Unfortunately, no

matter how able a person is, there must be cases where internal resources are inadequate for use to cope with the stress. Therefore, it is also important to cultivate a willingness to seek for help when in need, but this is by no means an easy job within the Chinese socio-cultural context like Hong Kong. Chinese people are more reluctant to seek for help, when they "face stressful life-events or personal difficulties, the first thing they would do is to try to keep it to themselves....because they wanted to save their face....[and they believe] that one should take care of one's own task and should not bother about other's trouble" (Shek & Mak, 1987). Nevertheless, as implied by the second canonical variates, improving the students' relations with same sex peers, and equipping them with better skills of interpersonal communication may encourage them to seek social support when they fail to cope on their own.

On the other hand, because planful problem-solving and positive reappraisal were characterized by low depressive attributional style and small self-concept discrepancy, it is also feasible to induce the desirable coping strategies indirectly through attributional style and self-concept discrepancy.

Attributional style is a cognitive construct, it represents how people perceive, understand, and explain the world around them. Due to the cognitive nature of attributional style, it is possible to influence and shape attributional style through learning and teaching in the school settings. Teachers are always in a position to explain things, to help students organize and interpret events; so teachers should be aware of their advantageous position and utilize it to help students develop a healthy and desirable attributional style. As reported by Försterling (1985), persuasion is one of the important means to induce attributional change. Thus, teachers, who

use persuasion most of the time, are in the best position to induce attributional change in students. Nevertheless, in order to be able to influence students' attributional style, teachers themselves should have a better knowledge and awareness of the attribution process. Otherwise, it will just be a case of the blind leading the blind.

Besides attributional style, good coping behavior is also characterized by small self-concept discrepancy, so another way to influence students' coping behavior is through the students' self-concept discrepancy. Of all the 438 students in the present study, over 40% named the parents as their most important significant others and another 40% named their peers. Thus, the attitudes of the peers and parents have very significant impact on students' self-concept discrepancy. Therefore, teachers and parents should be careful about their comments and attitude to students. They should not impose too demanding expectation or ideal on students. Otherwise, great self-concept discrepancy is very likely to endanger students' coping with failure. Students should also be trained to evaluate properly the attitudes from their peers so that some immature ideas and irresponsible opinions from their peers will not have detrimental effects on their own self-concept.

In a world that glorifies achievement and success, cut-throat competition is the inevitable fate for everyone. Unfortunately, those who run in the stadium all run, but only one receives the prize, the majority are losers. Hope that we will not forget to lend a helping hand to the losers while we are clapping hands for the winner. Failure can be destructive and catastrophic, but a more positive orientation to failure, a better understanding of the coping process will certainly help us make stress become eustress (Selye's term for beneficial stress; Selye & Cherry, 1978) and stumbling-block become stepping-stone.

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Appendices

Appendix A
Chinese version SDQII

各位同學：

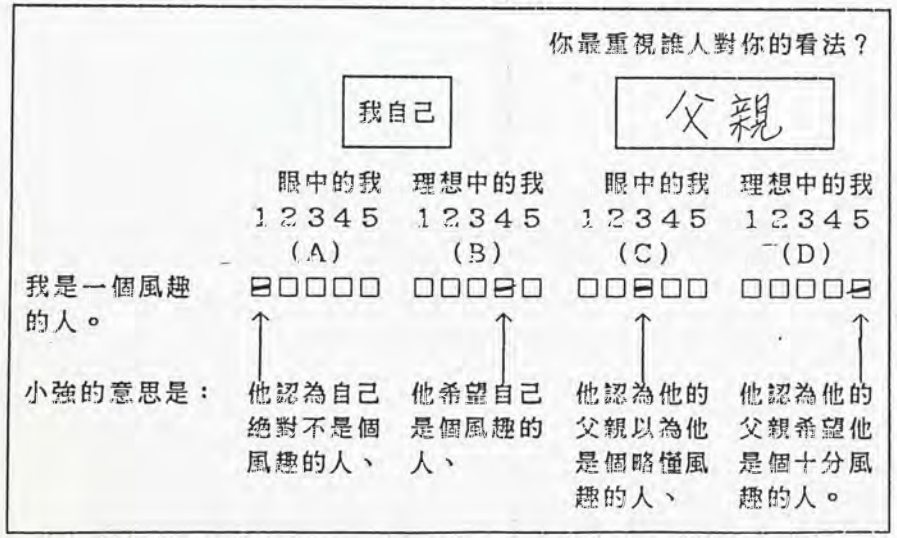
我們正在進行一項有關中學生處理失敗的研究，懇請你幫助。這並不是一次考試，所以並沒有對與錯之分。每一個人的答案可能都會不同，最重要的是你能表示出你真正的感受。故此；你在作答時，請不要跟別人討論你的答案，也不需要考慮很久才作答，只需要憑你對每條題目的即時反應作答便可。你的答案將會絕對保密，除研究之外，不會作其他用途，謝謝你的幫助。

劉誠　　潘詠棠　　譚啓
香港中文大學　教育學院

性別	□男　□女	年齡		宗教	□有　□沒有	班別	

【甲】下面有四十六條對你的描述的題目。請根據你的感受，在每題右邊（A）、（B）、（C）、（D）四項中選出適當的數字。數字愈大表示你愈同意那條題目對你的描述。

例如小強這樣回答了下面的一條題目：



你最重視誰人對你的看法？

	我自己			
	眼中的我 1 2 3 4 5 (A)	理想中的我 1 2 3 4 5 (B)	眼中的我 1 2 3 4 5 (C)	理想中的我 1 2 3 4 5 (D)
1・我的數學很好。	□□□□□	□□□□□	□□□□□	□□□□□
2・我的外型不錯。	□□□□□	□□□□□	□□□□□	□□□□□
3・我很喜歡閱讀。	□□□□□	□□□□□	□□□□□	□□□□□
4・我的體重適中。	□□□□□	□□□□□	□□□□□	□□□□□
5・我的口才不錯。	□□□□□	□□□□□	□□□□□	□□□□□
6・我的相貌不錯。	□□□□□	□□□□□	□□□□□	□□□□□
7・我喜歡運動。	□□□□□	□□□□□	□□□□□	□□□□□
8・我的樣子很好。	□□□□□	□□□□□	□□□□□	□□□□□
9・我喜歡我的父母。	□□□□□	□□□□□	□□□□□	□□□□□
10・我的父母了解我。	□□□□□	□□□□□	□□□□□	□□□□□
11・我有很多異性朋友。	□□□□□	□□□□□	□□□□□	□□□□□
12・我的文章寫得不錯。	□□□□□	□□□□□	□□□□□	□□□□□
13・我喜歡大部份學科。	□□□□□	□□□□□	□□□□□	□□□□□
14・我善於表達自己。	□□□□□	□□□□□	□□□□□	□□□□□
15・我經常受異性注視。	□□□□□	□□□□□	□□□□□	□□□□□
16・我的體態富吸引力。	□□□□□	□□□□□	□□□□□	□□□□□
17・我受同性朋友歡迎。	□□□□□	□□□□□	□□□□□	□□□□□
18・我的閱讀能力很好。	□□□□□	□□□□□	□□□□□	□□□□□
19・我有很多同性朋友。	□□□□□	□□□□□	□□□□□	□□□□□
20・我是一個好運動員。	□□□□□	□□□□□	□□□□□	□□□□□

你最重視誰人對你的看法？

		我自己				
		眼中的我 (A)	理想中的我 (B)		眼中的我 (C)	理想中的我 (D)
		1 2 3 4 5	1 2 3 4 5		1 2 3 4 5	1 2 3 4 5
21.	總括來說，我看重自己。	□□□□□	□□□□□	21	□□□□□	□□□□□ 21
22.	我喜歡大部份學科的作業。	□□□□□	□□□□□	22	□□□□□	□□□□□ 22
23.	總括來說，我接納自己。	□□□□□	□□□□□	23	□□□□□	□□□□□ 23
24.	我很容易結交同性朋友。	□□□□□	□□□□□	24	□□□□□	□□□□□ 24
25.	總括來說，我很有自信。	□□□□□	□□□□□	25	□□□□□	□□□□□ 25
26.	我的價值觀跟父母一樣。	□□□□□	□□□□□	26	□□□□□	□□□□□ 26
27.	我大部份學科的表現不錯。	□□□□□	□□□□□	27	□□□□□	□□□□□ 27
28.	我在運動時精力充沛。	□□□□□	□□□□□	28	□□□□□	□□□□□ 28
29.	我與同性朋友有很多活動。	□□□□□	□□□□□	29	□□□□□	□□□□□ 29
30.	我在數學堂的表現很好。	□□□□□	□□□□□	30	□□□□□	□□□□□ 30
31.	我很容易結交異性朋友。	□□□□□	□□□□□	31	□□□□□	□□□□□ 31
32.	我年幼時，父母對我不錯。	□□□□□	□□□□□	32	□□□□□	□□□□□ 32
33.	我能很快學會大部份學科。	□□□□□	□□□□□	33	□□□□□	□□□□□ 33
34.	我喜歡在運動時全力以赴。	□□□□□	□□□□□	34	□□□□□	□□□□□ 34
35.	同學經常向我請教數學。	□□□□□	□□□□□	35	□□□□□	□□□□□ 35
36.	我大部份學科的成績都不錯。	□□□□□	□□□□□	36	□□□□□	□□□□□ 36
37.	總括來說，我是一個有價值的人。	□□□□□	□□□□□	37	□□□□□	□□□□□ 37
38.	我覺得數學題有趣及富挑戰性。	□□□□□	□□□□□	38	□□□□□	□□□□□ 38
39.	我與異性朋友交往時，覺得很自然。	□□□□□	□□□□□	39	□□□□□	□□□□□ 39
40.	總括來說，我對自己抱肯定的態度。	□□□□□	□□□□□	40	□□□□□	□□□□□ 40
41.	我與異性朋友談話時，覺得很自然。	□□□□□	□□□□□	41	□□□□□	□□□□□ 41
42.	總括來說，我對自己的觀感不錯。	□□□□□	□□□□□	42	□□□□□	□□□□□ 42
43.	我會像我父母教養我一般地教養我自己的孩子。	□□□□□	□□□□□	43	□□□□□	□□□□□ 43
44.	我與同性朋友談話時，覺得很自在。	□□□□□	□□□□□	44	□□□□□	□□□□□ 44
45.	我數學科的表現比其他科好。	□□□□□	□□□□□	45	□□□□□	□□□□□ 45
46.	我在運動時有很好的持久力。	□□□□□	□□□□□	46	□□□□□	□□□□□ 46

【乙】請你想像自己在以下的情況中，然後試想想甚麼原因造成這情況。故然，造成每一事件的原因會有很多。但假如以下情況真的發生在你身上，請你很簡單地指出一項最重要的原因。然後請回答有關這原因的三個問題，及有關這情況的一個問題。

例如小美回答了例題，她的意思是：

（1）她得到冠軍的原因有一半以上是由環境造成；
（2）下次歌唱比賽時這些原因多數不會再出現；
（3）這次的勝利絕不會影響她生活的其他方面；
（4）假如她真的取得冠軍，她覺得對她來說是十分重要的。

請幻想你處身在下列的情況中		請寫下一項最主要的原因	這原因，是由你個人所造成，抑或是由其他人或環境所造成？ 環境 . . . . . 自己	將來遇到這情況時，這原因會否繼續存在？ 會存在 . . . . . 不會存在	這原因只影響這情況還是會影響你生活的其他方面？ 這情況 . . . . . 其他情況	假如這情況真的發生在你身上，對你來說是否重要？ 重要 . . . . . 不重要
例	你在歌唱比賽中得了冠軍。	別人水準低	□■□ □ □□□	□□□ □ □■□	■□□ □ □□□	■□□ □ □□□
1	一位朋友稱讚你的外表美麗。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
2	你在一段時間內找不到工作。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
3	你成為非常富有的人。	—	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
4	朋友請求你幫忙，但你卻拒絕他。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□

請幻想你處身在下列的情況中		請寫下一項最主要的原因	這原因，是由你個人所造成，抑或是由其他人或環境所造成？	將來遇到這情況時，這原因會否繼續存在？	這原因只影響這情況還是會影響你生活的其他方面？	假如這情況真的發生在你身上，對你來說是否重要？
			環境 . . . . . 自己	會存在 . . . . 不會存在	這情況 . . . . . 其他情況	重要 . . . . . 不重要
5	你向一個團體作一重要演講，聽眾的反應不太好。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
6	你完成一項重要工作，被別人極度嘉許。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
7	你遇到一位朋友，他滿懷敵意地對你。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
8	你不能完成其他人期望你要做好的全部事情。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
9	你的異性朋友對你表達出比以前更深的愛意。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
10	你成功地申請到你極渴望得到的大專學位。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
11	你赴異性朋友的約會，結果很不愉快。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□
12	你得到了加薪。		□□□ □ □□□	□□□ □ □□□	□□□ □ □□□	□□□ □ □□□

【丙】正所謂：人生在世，不如意的事十常八九。日常生活中，你往往會遇到很多失敗的經驗，例如：考試不合格、參加比賽落敗、與朋友鬧翻和得不到父母信任等。當你遇到挫敗時，你通常會有甚麼反應或行動？請在每題後的方格中選出適當的答案。

	從不	很少	間中	經常
1・專注下一步要採取的行動。	□	□	□	□
2・做些自己也認為行不通的事，因這比甚麼也不做好。	□	□	□	□
3・找出與這事有關的人，企圖改變他（她）的想法。	□	□	□	□
4・跟別人談談，以便找出更多有關資料。	□	□	□	□
5・不讓事情控制我，避免想太多與這事有關的東西。	□	□	□	□
6・無論如何也要為自己留後路。	□	□	□	□
7・嘗試不讓自己因一時衝動而作出太快的反應。	□	□	□	□
8・接受命運，因為人總有運氣較差的時候。	□	□	□	□
9・當作甚麼也沒有發生過。	□	□	□	□
10・嘗試隱藏自己的感受。	□	□	□	□
11・嘗試向好的方面想。	□	□	□	□
12・比平常睡得較多。	□	□	□	□
13・對引起這問題的人表示憤怒。	□	□	□	□
14・接受別人的同情及諒解。	□	□	□	□
15・這事引起我做一些富創意的事情。	□	□	□	□
16・嘗試忘記整件事。	□	□	□	□
17・尋求專業人士協助。	□	□	□	□
18・認為失敗對人的成長有幫助。	□	□	□	□
19・向別人道歉或作出補救行動。	□	□	□	□
20・定出計劃並依計劃而行。	□	□	□	□
21・無論如何，我會表明我的感受。	□	□	□	□
22・承認問題因自己而起。	□	□	□	□
23・認為經一事，長一智。	□	□	□	□
24・將事情告訴一個能實際幫助我的人。	□	□	□	□
25・用食物、煙酒或藥物使自己忘記不快。	□	□	□	□
26・博一博運氣，做些冒險的事。	□	□	□	□
27・希望奇蹟出現。	□	□	□	□
28・找尋新的信念。	□	□	□	□
29・重新發掘生命中甚麼是最重要的。	□	□	□	□
30・改變一些東西，使事情的發展較為順利。	□	□	□	□
31・不想與別人一起。	□	□	□	□
32・自我批評。	□	□	□	□
33・向我所敬重的親友請教。	□	□	□	□
34・不讓別人知道事情是如何糟糕。	□	□	□	□
35・不將問題看得太嚴重。	□	□	□	□
36・向人說出我的感受。	□	□	□	□
37・不退縮，並繼續爭取我所想得到的。	□	□	□	□
38・遷怒他人。	□	□	□	□
39・用以往的經驗解決問題。	□	□	□	□
40・我知道應如何處理，故我加倍努力。	□	□	□	□
41・拒絕承認已發生的事實。	□	□	□	□
42・向自己發誓，下次不會再犯同樣的錯誤。	□	□	□	□
43・想幾個不同的解決方法。	□	□	□	□
44・不讓我的感受太影響其他事情。	□	□	□	□
45・改變自己。	□	□	□	□
46・期望事情會很快過去。	□	□	□	□
47・幻想事情會有出人意料的發展。	□	□	□	□
48・祈求上天幫助。	□	□	□	□
49・將我準備做的事和說的話仔細想一遍。	□	□	□	□
50・想像一個我所尊敬的人會如何處理這問題。	□	□	□	□